Master Plan - Dissemination

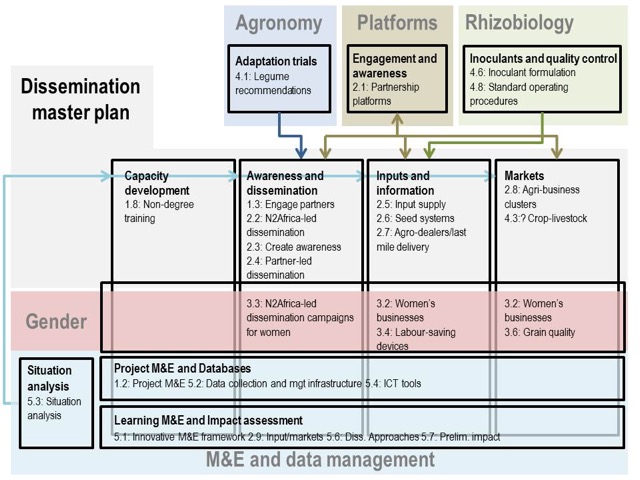
# Introduction and justification

The N2Africa Master Plans are documents intended to foster a common approach across the five Core Countries. The plans are designed to achieve the N2Africa Vision of Success and the objectives set out in the Research Framework of the approved project proposal. This means all Master Plans need to ensure timely delivery of the outputs and outcomes.

This Master Plan directly addresses:

**Objective 2: Delivery and dissemination, sustainable input supply, and market access**

The diagram below shows the linkages and interdependencies among the different master plans. Following the “Development to Research” approach of N2Africa, dissemination forms the core of the activities and leads the project from within. Given the ambition of N2Africa to reach more than 0.5 million smallholders within five years, partnerships are key and much of this document focuses on how partners can be engaged through sub-agreements. A glossary and table of contents can be found at the end of the document.



# Dissemination overlay with the Results Framework

The purpose of this section is to illustrate how the Dissemination Master Plan overlays with relevant Activities, Outputs and Outcomes of the Results Framework. ‘Dissemination’ cross cuts sections of the Framework and can clarify the role of Public Private Partnership (PPP) agreements in the implementation of the project, whilst meeting the original contractual Framework and milestones.

## Analysis, Planning and Design of Public Private Partnerships (PPPs)

Table 1:Results Framework Overlay with the Analysis, Planning and Design of Partnerships

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| **Analysis, Planning and Design of Public Private Partnerships (PPPs)** | | |
| **Activities** | **Outputs** | **Outcomes** |
| 1.2. Set up systems for monitoring and evaluating project progress | 1.2.1. By contractual deadlines, relevant technical and financial reports forwarded  1.2.2. By Q4 of year 5, a final project report submitted | 1.1. Effective and timely work flows and project processes and procedures generate the expected project outputs and ensure effective learning between specific project components  1.2. Communication tools and processes generate additional interest in N2Africa activities, translated in extra dissemination, investments, etc.  **1.3. Partners along the legume input and output value chains cooperate actively towards achieving the overall N2Africa goals**  3.1. Female farmers increasingly lead N2Africa promotion and dissemination activities |
| 1.3. Engage research, development, private sector, and other relevant partners in each of the target countries | 1.3.1. By Q2 of year 1, potential partners operating within priority legume value chains mapped  1.3.2. By Q3 of year 2, MoUs with priority partners in each of the target countries signed |
| 1.4. Develop and operationalize a project-wide internal and external communication strategy | 1.4.1. By Q3 of year 1, an internal and external communication strategy developed  1.4.2. By Q4 of each year, communication products generated, including a continuously updated N2Africa website, regular Podcasters, and social media products  1.4.3 Communication to farming communities will be effected through links to Farm Radio and other media outlets (e.g. local newspapers)" |
| 1.5. Develop country-specific research and dissemination implementation plans, including a sustainable exit strategy | **1.5.1. By Q4 of year 1, country-specific research and dissemination implementation plans formalized, including an exit strategy.**  1.5.2. By Q4 of each year, implementation plans are updated based on M&E feedback |
| 1.6. Organize seasonal/yearly project-wide and country-specific planning workshops | 1.6.1. By Q4 of each year, project-wide implementation plans developed, evaluated, and revised through an annual project planning workshop  1.6.2. By Q4 of each year, 1 or 2 seasonal, in-country implementation plans developed, evaluated, and revised through in-country- planning meetings |
| 3.1. Sensitize partners, farmer associations, and farming households and mainstream approaches to address gender inequity in farming and decision-making | 3.1.1. By Q4 of years 1-4, all partners and households engaged in N2Africa activities that address gender inequity |

The Outcome ‘*Partners along the legume input and output value chains cooperate actively towards achieving the overall N2Africa goals*’ defines the purpose of a PPP. A PPP hereby disaggregates the master N2Africa project document into more specific sub-documents with specific target areas and groups, chain actors and stakeholders, objectives, activities, roles, resources, M&E and reporting.

Analysis reflects the mapping of potential partners operating within priority legume value chains (Output 1.3.2) and engaging them to assess their compatibility and buy-in for the N2Africa project (Activity 1.3). These can be public (NGO) as well as often inter-related private sector partners and can be brought together within a PPP. As most development projects have a Private Sector and Value Chain approach, there is little distinction between NGO and Private Sector led dissemination.

MoUs are more general agreements to collaborate and useful at a starting point especially with public sector partners. These may be engaged in multiple PPPs when their target areas, projects, crops are multiple and more focussed agreements are desirable i.e. World Vision in Uganda. In all cases, however, the Private sector leads the PPP whereby the NGO and N2africa are stakeholders.

Communication is included as it serves to generate additional interest in N2Africa activities, translated in extra dissemination, investments from public and private development partners. After having mapped potential partners, the merit of collaborating with N2Africa is to be communicated.

Develop country-specific research and dissemination implementation plans (*PPP*), including a sustainable exit strategy (Activity 1.5), reflects the above being specific and having an exit strategy which is part and parcel with sustainability, a main element of a PPP. Output 1.5.1 means being formalized while country specific can be altered to the more disaggregated levels mentioned earlier. Sustainability in the N2Africa context and especially related to input supply will often mean Private Sector led i.e. in a PPP, certain Key Lead Firm(s) front the partnership and ensure sustainability.

With setting targets, a PPP is no different in its design from a normal project document and inherent to an M&E framework that feeds back to, or aggregates the N2Africa M&E overall one. This is reflected in ‘each year, implementation plans are updated based on M&E feedback’ (Output 1.5.2).

Activity 1.6 and its related Outputs replicate Activity 1.5 and its Outputs but the former is at an even higher aggregated level, whilst implicates it requires input from the disaggregated PPP levels. This also flows logically into the Innovation Platform Master Plan targeting external audiences.

The gender component is part of planning and designing a PPP addressing women as a specific target group. This can be integrated in a more general or be a separate PPP targeting women specifically. Activity 3.1 is to sensitize partners during planning and designing interventions in a PPP as per the N2Africa Result Framework, the same for nutrition i.e. CRS has similar interventions.

Section 1.1 Analysis, Planning and Design of PPPs, thus shows that early on in the project the foundation is to be laid for its implementation using formalized planning documents with partners including specific M&E frameworks. It is to merge N2Africa with initiatives from other partners within the N2Africa mandate and budget as per the master project document. To accomplish this, a PPP has four pre-determined Activity Domains or Pillars, i.e.:

(1) Capacity Building;

(2) Dissemination;

(3) Input Demand information and Supply;

(4) Marketing.

These are further specified once the scope of the PPP is determined during Analysis, Planning and Design. Scope is hereby defined as crops, partners and their roles, target areas, number of farmers.

## PPP-Pillar 1: Activity Cluster Capacity Building

Table 2: Results Framework Overlay with the Capacity Building Pillar in Partnerships

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| **PPP-Pillar 1: Activity Cluster Capacity Building** | | |
| **Activities** | **Outputs** | **Outcomes** |
| 1.8. Develop and implement a non-degree-related capacity strengthening plan for relevant partners working within legume value chains | 1.8.1. By Q4 of year 1, a non-degree-related capacity strengthening plan developed  1.8.2. By Q4 of each year, at least 4 relevant and demand-driven training materials developed in cooperation with the African Soil Health Consortium (ASHC)  **1.8.3. By Q4 of year 5, at least 200 partners from at least 20 stakeholder groups trained in N2Africa technologies and approaches** | 1.4. Scientists and other stakeholder groups are empowered to further the N2Africa research and development |

In Table 2 the overlay of PPP-Pillar 1: Activity Cluster Capacity Building with the Results framework is seen. This is part of Objective 1 but now separated as an Activity Cluster or Pillar 1. After partners portray the need to have their capacity strengthened along certain subjects, a detailed program is to be designed within a PPP agreement.

## PPP-Pillar 2: Activity Cluster Dissemination

Table 3: Results Framework Overlay with the Dissemination Pillar in Partnerships

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| **PPP-Pillar 2: Activity Cluster Dissemination** | | |
| **Activities** | **Outputs** | **Outcomes** |
| 2.2. Facilitate N2Africa-led gender specific dissemination campaigns ‘*in the context of development-to-research learning cycles*’ | 2.2.1. By Q1 of years 1-4, specific dissemination guidelines for legume intensification assembled  2.2.2. By Q4 of years 1-4, specific dissemination guidelines evaluated by a preset (see Returns-on-Investment calculations) number of male and female farmers | **2.3. Dissemination partners attain/surpass the anticipated number of households targeted and continue to engage in legume intensification post-project**  **3.2. Women improved their income from legume production and have a greater say in the use of such income**  4.1. Recommendations for the intensification of legume production result in at least 50% increase in legume productivity  **4.4. Overall farming system productivity and soil fertility status is improved through increased legume productivity**  5.1. National system scientists use the GL x GR x E x M framework and the obtained information to advance legume research for development within their countries  5.2. Dissemination partners integrate effective and efficient dissemination approaches for legume technologies in their future development initiatives  **5.3. Effective ICT tools provide information on legume production, management, and value addition beyond the project life** |
| 2.3. Create widespread awareness on N2Africa technologies and interventions | **2.3.1. By Q4 of years 1-4, at least 2 media events (e.g., radio, newspaper articles) per country implemented** |
| 2.4. Facilitate partner-led dissemination campaigns with specific attention to gender | 2.4.1. By Q4 of years 2-4, household targets (see Returns-on-Investment calculations), dissemination approaches, and content for partner-led dissemination activities agreed and implemented, with specific attention to gender  2.4.2. By Q4 of years 3-5, feedback on the performance of the dissemination models and the demonstrated content fed back to N2Africa |
| 3.3. Conduct dissemination campaigns targeting women farmers | 3.3.1. By Q4 of years 1-4, themes and models for women-specific dissemination campaigns identified  3.3.2. By Q4 of years 2-5, at least 25% of the female farmers participating in the overall N2Africa dissemination activities are also actively engaged in the women-specific dissemination campaigns |
| 4.1. Develop variety x inoculant x nutrient management recommendations for the target legumes and legume production areas based on yield gap analysis | 4.1.1. By Q4 of years 1-4, seasonal research campaigns towards legume intensification and yield gap closure implemented  **4.1.2. By Q4 of years 2-4, improved legume production recommendations integrated in the dissemination campaigns** |
| 5.1. Develop an innovative framework for strategic M&E, allowing for timely feedback loops | **5.1.1. Throughout the project, a strategic M&E framework provides timely feedback to learning and future planning** |
| 5.2. Set-up data collection, management, and analysis infrastructure | 5.2.1. By Q4 of year 1, data management infrastructure is in place and data population initiated |
| 5.3. Conduct situation analysis, including the overall bio-physical, socio-cultural, and political environment and farming system and yield gap analysis for targeting legume interventions | 5.3.1. By Q4 of year 1, information from the situation analysis available for the proper targeting of legume interventions |
| 5.4. Develop innovative ICT tools to collect data and provide feedback to stakeholder groups | 5.4.1. By Q4 of year 2, prototype ICT tools for data collection and information provision validated  5.4.2. By Q4 of year 4, information on legume production, management, and value addition transferred to stakeholders using ICT tools" |
| 5.5. Unravel GL x GR x E x M interactions for legume production towards the development of best-fit recommendations | **5.5.1. By Q4 of year 4, the relative important of GL, GR, E, and M understood for specific legumes and production environments and integrated in improved recommendations** |
| 5.6. Evaluate the effectiveness and efficiency of various D&D approaches for legume intensification | **5.6.1. By Q4 of year 4, information on the effectiveness and efficiency of various D&D approaches for legume intensification available to dissemination partners** |

As seen in Table 2 there is a multitude of Activities, Outputs and Outcomes that are grouped under the Dissemination Pillar and stem from Objectives 2, 3 and 5. The purpose of dissemination is to create awareness, learn and adapt Best Bet to Best Fit technologies and the role of field technicians from whatever type of partner organization is to jointly with farmers monitor and evaluate both the demonstration-research-adaptation plots as well as the farmers’ mainstream-production fields.

N2Africa-led dissemination serves three purposes (1) a more controlled environment and protocols allow for better data collection for development-to-research learning cycles (2) create buy-in, take the forefront-compliment and build capacity ‘on the job’ of partners conducting or developing their own dissemination models and (3) collect quality data to predict and explain input demand.

Partner-led dissemination in case of NGOs thus benefit in capacity building from N2Africa-led dissemination when overlapping in a PPP target area. Private sector-led dissemination is not likely to happen spontaneously as Inoculants, Certified Seeds and Legume Fertilizer supply chains to small-holder farmers are still pre-competitive and a main task of N2Africa is to first prove the business case for them, whilst N2Africa led dissemination is to serve the private sector in this.

Progressive insight showed that many, especially development partners have quite similar project designs in their dissemination activities but desire to obtain technical back-stopping and align with N2Africa dissemination approaches. A good example is the AGRA-PASS project which in its first phase was mainly on research but faced several challenges on technical-agronomy expertise, consistency in data collection tools, inefficient data collection methods and little learning M&E. In its second phase, AGRA-PASS requested N2Africa to take the lead in Capacity Building for its Grantees and streamline, improve on the above failings. The Grantee projects had much overlap with N2africa phase I while for PASS-II the new grants have yet to be designed and will elaborate on a value chain approach i.e. moving towards N2Africa phase-II. This is an excellent opportunity for N2Africa to align with PASS-II on Table 3 Dissemination activities, outputs and outcomes.

## PPP-Pillar 3: Activity Cluster Input Demand Information and Supply

Table 4: Results Framework Overlay with the Input Demand Information and Supply Pillar

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| **PPP-Pillar 3: Activity Cluster Input Demand Information and Supply** | | |
| **Activities** | **Outputs** | **Outcomes** |
| 2.5. Facilitate private-public partnerships towards the sustainable supply of inoculants and fertilizer | **2.5.1. By Q4 of years 1-4, inoculants available through public-private partnerships, through importation and/or local production, the latter facilitated by the inoculant production pilot plant**  2.5.2. By Q4 of years 1-4, legume-specific fertilizer made available to smallholder farmers by fertilizer companies/retailers | 2.1. Country-specific inoculant, seed, and fertilizer supply strategies guarantee the sustainable supply of high quality seeds and inoculants and legume-specific fertilizer  **2.3. Local agro-dealers marketing fertilizer, seed, and inoculants are aligned with grass-root producer groups and input wholesalers and manufacturers**  **3.4. Women use pre- and post-harvest labour-saving tools, resulting in higher net profits from legume production and processing** |
| 2.6. Facilitate the establishment of private sector-led and/or community-based legume seed systems | 2.6.1. By Q4 of years 1-4, sufficient legume foundation seed produced by private enterprises and/or government institutions  2.6.1. By Q4 of years 1-4, sufficient quality legume seed available to farming communities |
| 2.7. Engage agro-dealer and other last-mile delivery networks in supplying legume agro-inputs | 2.7.1. By Q4 of years 1-2, a minimum number of agro-dealers and other delivery network partners trained in the storage, handling, and use of inoculants  2.7.2. By Q4 of years 2-5, agro-dealer and other last-mile delivery networks engaged in the commercial supply to farmers of agro-inputs, including inoculants |
| 3.2. Assess business opportunities for women in agro-input supply (*and legume marketing and value addition*) opportunities | 3.2.1. By Q4 of years 2-4, business opportunities for women identified  **3.2.2. By Q4 of years 4-5, at least 2 businesses led by women established per country"** |
| 3.4. Develop labour-saving pre- and post-harvest legume tools for female farmers | 3.4.1. By Q4 of year 2, prototype labour-saving pre- and post-harvest tools for female farmers validated  3.4.2. By Q4 of years 2-4, labour-saving tools included in the various dissemination campaigns" |

PPP-Pillar 3: Activity Cluster Input Demand Information and Supply includes a component not explicitly taken into account in the design of the N2Africa project i.e. a system to be established to *continuously* predict the demand for the inputs Inoculants, Certified Seeds and Legume Fertilizer, while also applicable to labour saving tools as part of the gender objective. This component is therefore not clearly reflected in Table 4 but will be elaborated on in Chapter III – 3.4.

As mentioned earlier these inputs’ supply chains are as yet pre-competitive but also different in nature. Both Inoculants and Legume Fertilizers can often be readily availed if demand and locations – distribution points are known sufficiently in advance i.e. 3-4 months. Seed is more complex as it needs planning from breeder-foundation to certified-seed and shelf life is limited. With self-pollinating legume seeds demand is furthermore complex or unpredictable as farmers tend to multiply certified seeds and share the second-third generation before feeling the need to order again.

In Activity 2.5 ‘*Facilitate private-public partnerships towards the sustainable supply of inoculants and fertilizer*’ one may add certified seeds especially if seed companies are involved and not (only) community-based legume seed systems. The PPP will include Outcome 2.1 ‘*Country-specific inoculant, seed, and fertilizer supply strategies guarantee the sustainable supply of high quality seeds and inoculants and legume-specific fertilizer*’, although be more disaggregated from a whole country but according to target areas, crops and partners involved.

It may be clear that the PPP under activity 2.5 is to be built from the analysis, planning and design of a PPP (Section 1.1) and to include the Pillars (1) Capacity Building, (2) Dissemination, (3) Input Demand Information and Supply and (4) Marketing, all of which need to have reached a certain level of performance to ensure sustainable input supply i.e. achieving the key milestone-outcome 2.3 ‘*Local agro-dealers (other last mile delivery networks) marketing fertilizer, seed, and inoculants are aligned with grass-root producer groups and input wholesalers and manufacturers*’.

Labour saving tools are also put under Pillar 3 as the basic mechanisms that apply for the other inputs are similar. Manufacturers have to be aligned with grass-root producers (smallholders) it requires the other pillars and is an activity that needs to be planned in the broader project context.

Activity 3.2 ‘*Assess business opportunities for women in agro-input supply (and legume marketing and value addition) opportunities*’ is basically in line with the other activities on inputs only with women as a specific target group. An example from Rwanda is where women maintain quality seeds of cowpeas but would benefit from Capacity Building and occasional supply of certified seeds of improved varieties if having become available. The output marketing – value adding is hereby replicated under the pillar marketing but inputs apply under this Pillar.

## PPP-Pillar 4: Activity Cluster Marketing

Table 5: Results Framework Overlay with the Marketing Pillar in Partnerships

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| **PPP-Pillar 4: Activity Cluster Marketing** | | |
| **Activities** | **Outputs** | **Outcomes** |
| 2.8. Establish agri-business clusters around legume marketing and value addition | 2.8.1. By Q4 of years 1-4, opportunities for collective marketing and value addition for smallholder farmer associations identified  2.8.2. By Q4 of years 1-4, a preset (see Returns-on-Investment calculations) number of households engaged in the collective marketing and value addition of legume grains and value-added products | **2.2. Smallholder agri-business clusters generate incentives to expand and intensify legume production through profitable access to markets for legume grains and derived products**  3.3. Better knowledge of and access to household-level legume processing tools improves the nutritional status of women and children in at least 2 target countries  4.3. Farmers invest actively in the production of more and higher quality livestock feed to support livestock production |
| 3.2. Assess business opportunities for women in (*agro-input supply and*) legume marketing and value addition opportunities | 3.2.1. By Q4 of years 2-4, business opportunities for women identified  **3.2.2. By Q4 of years 4-5, at least 2 businesses led by women established per country** |
| 3.5. Evaluate the impact of environment (E) and management (M) on nutritional quality of legume grain | **3.5.1. By Q4 of year 3, relationships between grain nutritional quality and management / environmental conditions quantified** |
| 3.6. Develop legume product-enriched food baskets for smallholder families | 3.6.1. By Q4 of year 1, food consumption and diversity scoped for at least 2 Core Countries  3.6.2. By Q4 of years 2-4, validated legume processing technologies for improved household nutrition utilized by at least 5000 women |
| 4.3. Intensify crop-livestock interactions through enhancing feed availability of legume crop residues | 4.3.1. By Q4 of year 2, niches for use of legume crop residues within and between farms identified  4.3.2. By Q4 of years 3-4, feed availability and quality enhanced through appropriate use of grain legume residues |

Having access to a profitable market for the target legumes is a pre-requisite for farmers to change their behaviour through adaptation and adoption of legume technologies to improve their yields. As with the other Pillars, a certain level of performance of the marketing Pillar is required for a PPP and thus the project as a whole to meet its objectives. The project design including budget lines are, however, limited in resources to significantly improve poor market conditions through for instance value addition-processing, access roads or forming and supporting Agribusiness Clusters.

In most cases, potential partners are present that provide profitable markets, although with various degrees of adhering to inclusive business models. In general the markets and prices for legumes are quite well developed, although some periodic imperfections can be seen. Nevertheless, it is a first step in a PPP to identify most promising or developed out-put marketing partners and related areas where they source from and secondly if this overlaps with strong input suppliers and nucleus farms. Thirdly if there are other development partners in these areas on focus legume value chain projects.

With a target of 105,000 beneficiaries for former phase-I countries, 65,000 for the other focus countries and 43,750 – 65,500 in the different Tier 1 countries, a lion share of these beneficiary households can easily be present in a conducive environment market wise. In some cases, backward integration of buyers – processors to their out-growers serve as commendable opportunities for collaboration, for instance Wienco in Ghana or ETG in Tanzania that have an organized input supply system in place while also guaranteeing a competitive market. In Ethiopia the buyer ACOS is promoting an exclusive chick pea variety for which it has identified a niche market etc.

Moreover, many NGOs have developed Agribusiness Clusters or similar entities and most are value chain projects with active involvement of the private sector already. ACOS also works with SNV, Notore in Nigeria works with USAID Nigeria markets, CRS and COMPRO-II.

Considering the above, the analysis phase is to guide the project in its intervention areas and partners to jointly draw up the scope and related design of the PPPs. This will implicitly consider marketing rather than being an explicit project activity. The bulk of the N2Africa resources being N2Africa led dissemination are, however, to logically fall within the PPPs. This is justified as being required to make a business case to the input suppliers, fast-track partner capacity building as well as creating buy-in to private sector partners that have specific requests like ACOS to disseminate a particular chick pea variety which current supply is far below their marketing potential.

Under marketing also the Objective 3 Gender components can be seen related to activity 3.2. ‘Assess business opportunities for women in (*agro-input supply and*) legume marketing and value addition opportunities’. This needs to be planned within a PPP context as well. This activity can often be seen in other (NGO) projects which N2Africa can liaise with and the same is true for the nutrition aspects, an example is CRS programs in Ghana and Nigeria. Improved nutrition at household level is largely a marketing issue with the household members being the consumers.

Activity 4.3 ‘*Intensify crop-livestock interactions through enhancing feed availability of legume crop residues*’ is put under the marketing Pillar but could also be part of Dissemination or cross cut all Pillars as it is a separate product, hence would follow the same logic as a legume grain.

# Developing N2Africa Public Private Partnerships

Section 1 shows that sustainability and the project objectives cannot be achieved if the activities are not put in a logical context and are (partly) implemented independently from each other. It is for the dissemination master plan to give guidance and specifics to achieve the key milestone-outcome 2.3 ‘*Local agro-dealers (other last mile delivery networks) marketing fertilizer, seed, and inoculants are aligned with grass-root producer groups and input wholesalers and manufacturers*’.

The above specifics are not on how to set-up and collect data from research-demonstration-adaptation plots or even farmer fields as the former is part of the agronomy master plan and the latter part of the M&E one and the same is true for communication, gender and other subject-specific mater plans. It is to show how to set-up PPPs that take all the project aspects into account and group them logically to allow full participation and collaboration of public and private partners.

## Analysis, Planning and Design of Public Private Partnerships (PPPs)

Figure 1 shows and example layout of a PPP whereby the PPP Goal is expected to be achieved if the four Pillars (1) Capacity Building, (2) Dissemination, (3) Input demand information and supply and (4) Marketing have been addressed and perform at a satisfactory level within the PPP duration.



Figure 1: Example layout of the four Pillars linkage to the Project Goal within a PPP

The PPP objectives and milestones will in design be the same as the N2Africa ones but vary in amounts or levels to be achieved. By lack of other baseline data partners may want to front, it can initially be assumed that the N2Africa before and after data on yields, area under cultivation per legume crop-country and main cereal i.e. maize are correct and how they will increase over time subject to the number of farmers targeted in a PPP. The latter is a key PPP design feature and will also justify the resources allocated to the PPP by N2Africa, in staff time and possible sub-grants.

As can be seen as in Figure 2, there are a number of filters or considerations to be made that will influence the chances of success of the N2Africa Project i.e. farmers adopt the N2Africa promoted practices and increase their income. If any falls below a certain level of ‘performance’ farmers will probably not change their behaviour, whilst if the project and partners are not likely, during the project duration, to achieve these acceptable performance levels or the resources required doing so (opportunity costs) are relatively very high the efficiency of the project will be challenged. The rationale of a PPP is therefore to balance the above and select areas, partners in a reasonably conducive environment thereby considering the four pillars seen in Figure 1.



Figure 2: Filters that technologies need to pass through to favour adoption (Haigis et al. 1998)

## Analysis

Activity 1.3: Engage research, development, private sector, and other relevant partners in each of the target countries

Output 1.3.1: By Q2 of year 1, potential partners operating within priority legume value chains mapped

Output 1.3.2: By Q3 of year 2, MoUs with priority partners in each of the target countries signed

Analysis is best reflected by Activity 1.3 and related output 1.3.1 seen above. In reality these partners can best be approached through networking and will (partly) already be identified by existing value chain studies conducted for instance by Rusike or recently commissioned by the BMGF Landscaping study for a nascent Integrated Legume Value Chain Development Program.

N2Africa staff and their network will have a good idea of who may be relevant as partners, it is further important to realize that most NGO projects are very similar to N2Africa in their basic set-up i.e. result framework but lack the expertise on how to go about effective dissemination. N2Africa is often invited to or part of legume platforms, workshops and seminars like the recent ‘*Program for Agra Soil Health Grantees Workshop on Sharing Experiences in Implementation for ‘Going beyond Demos’ and Capacity Building in Data Management (Arusha, July 2014)*’.

After mapping the next step is selection of Partners. With Partners it is first of all meant the ones that will have a role along one or more of the four Pillars of a PPP. Secondly the NARS and NGOs eligible to sub-grants on agronomy trials, dissemination and delivery campaigns as per N2Africa budget lines. The sub-grantees may at time overlap with being an active chain actor in a PPP and examples are NASECO Seeds in Uganda and Notore Inputs sub-contracted by COMPRO-II.

The selection process of PPP partners, areas and crops can be highly iterative and intuitive but somehow needs to be on record for transparency, external audit purposes. A template can be developed and used to score potential partners and line of consensus – approvals - decision set-up. This can be done after it is also clear that the partners buy into the collaboration as call for proposals type of procedures are not applicable to N2Africa and would also be counterproductive.

In all cases a potential PPP with multiple partners will have to be weighed against the current and expected performance of the four Pillars seen in Figure 1. If there is and will likely be little to no capacity to further and scale out N2Africa technologies and approaches the project will fail. The same is true if markets, dissemination and input supply are below a certain performance levels and it will take the project too much resources or chances are generally low they can be improved sufficiently. Another consideration is the number of farmers reached versus resources required.

In light of the above, provisions should be made to incorporate N2Africa-led dissemination in a PPP which also forms the bulk of the project variable resources – budget. This will boost dissemination efforts of partners and their capacity building (on the job), creates buy-in from the private sector faced with pre-competitive supply chains and is to serve to make a business case.

As mentioned earlier, signing a MoU is useful with development partners as a more general agreement to collaborate and templates are available from IITA head office in Ibadan. These are, however, not specific enough compared to a PPP agreement with multiple partners.

Tasks:

* Map and engage potential partners, communicate the N2Africa mandate and benefits for collaboration using also the four pillars as a brief;
* Obtain project documents, results frameworks of development partners to assess compatibility of their initiatives with N2Africa, obtain policies from private sector partners for the same;
* Start negotiations for buy in and roles, merge partners that are inter-linked, define crops, target areas, target groups and assess partners and their roles, capacities against the four Pillars;
* Design selection criteria and use a scoring sheet to short list promising PPPs to be evaluated and decided upon by Country Coordinators, SBDO and BDOs, others....;
* If desirable start certain initial activities in case of urgency (season) not to lose the momentum;
* Fill the database (shared) of selected partners, areas, crops, farmers targeted and other details.

## Planning and Design

### *Objectives*

Table 6: Impact level key milestones and indicators (under development)

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| --- | --- | --- |
| **Key Milestones** | **Indicator** | **N2Africa Target (End Project)** |
| Increased income (gender disaggregated) of targeted legume smallholder farmers | % change in farmers’ (men/ women) net household income (from farm activity)  % of farmers (men/women) with increased income | At least 25% women (100,000 women) |
| Improved nutritional status of beneficiary women and children | Legume-based protein intake per woman/child per household  # of women & children with 25% legume-based intake | 25%  5,000 |
| Sustainable use of natural resources | Targeted households use inputs within sustainable rotations |  |
| National capacity to pipeline emerging legumes technologies for smallholder farmers developed | # of national institutions leading emerging legume technologies |  |
| Sustainable input supply systems for legumes at national level |  |  |

The planning of a PPP means defining the main parameters around which the partnership will be designed. It may also be an iterative process meeting key partner(s) and aligning the N2Africa mandate around the four Pillars with the Strategy, Scope and Activities of the Partner(s).

In Table 6 the N2Africa draft impact level key milestones and indicators are seen, the definitions-interpretations, calculation methods, unit of measurement, data source, level of collection, frequency, persons responsible and how the data will be collected are seen in Annex II.

For planning purposes, it is to see which ones will apply in a particular PPP and if they overlap, can be aligned with the development-private sector partner ones, same for who will be responsible to obtain the data – information etc. Impact is more a longer term goal, setting a common direction.

Table 7: Outcome level key milestones and indicators

|  |  |  |
| --- | --- | --- |
| **Key Milestones** | **Indicator** | **N2Africa Target (End Project)** |
| **Analysis, Planning and Design of Public Private Partnerships (PPPs)** | | |
| 1.3. Partners along the legume input and output value chains cooperate actively towards achieving the overall N2Africa goals | # of partnerships developed | 32 |
| **PPP-Pillar 1: Activity Cluster Capacity Building** | | |
| National teams leading all D2R activities | # of D2R activities led by national teams |  |
| **PPP-Pillar 2: Activity Cluster Dissemination** | | |
| 2.2. Dissemination partners attain/surpass the anticipated number of households targeted and continue to engage in legume intensification post-project | # of targeted households (men/women) reached by dissemination partners | 555,000 |
| 2.5 Dissemination partners integrate effective and efficient dissemination approaches for legume technologies in their future development initiatives | # of dissemination partners integrating effective and efficient N2Africa technologies in their programmes across target countries | 16 |
| 3.2. Women improved their income from legume production and have a greater say in the use of such income | # of women with increased income | 100,000 |
| 4.1. Recommendations for the intensification of legume production result in at least 50% increase in legume productivity | % legume productivity among target households  # of target households (men/women) with 50% increased productivity | 50%  275,000 |
| 4.4. Overall farming system productivity and soil fertility status is improved through increased legume productivity |  |  |
| 5.3. Effective ICT tools provide information on legume production, management, and value addition beyond the project life | # of ICT tools used by partners | 4 |
| 5.5.1. By Q4 of year 4, the relative important of GL, GR, E, and M understood for specific legumes and production environments and integrated in improved recommendations | # of quantified relationships integrated in improved recommendations | 16 |
| **PPP-Pillar 3: Activity Cluster Input Demand Information and Supply** | | |
| 2.3. Local agro-dealers/companies marketing fertilizer, seed, and inoculants are aligned with grass-root producer groups and input wholesalers and manufacturers | Volume of seeds, fertilizers and inoculants used per targeted producer groups per land area | 6,660; 11,100; 56 |
| 3.2.2. By Q4 of years 4-5, at least 2 (*input*) businesses led by women established per country | # of businesses established and led by women | 10 |
| 3.3. Better knowledge of and access to household-level legume processing tools improves the nutritional status of women and children in at least 2 target countries | # of women with access to household level-legume processing technologies | 5,000 |
| 3.4. Women use pre- and post-harvest labour-saving tools, resulting in higher net profits from legume production and processing | # of women using pre and post-harvest labour saving tools | 55,500 |
| 4.2. Inoculant producers avail improved inoculant formulations for the target legumes resulting in at least 10% increase in legume productivity and BNF | # of inoculant formulations applied/used by inoculant producers for target legumes in core countries | 3 |
| **PPP-Pillar 4: Activity Cluster Marketing** | | |
| 2.4. A preset (see Returns-on-Investment calculations) number of households engaged in the collective marketing and value addition of legume grains and value-added products | # of individual households (men/women) engaged in collective marketing, value addition of legumes and value added products | 275,000 |
| Diversified nutritious diets accessible to poor and women farmers | % of poor and women households using legume-enriched products |  |
| 3.2.2. By Q4 of years 4-5, at least 2 (*output*) businesses led by women established per country | # of businesses established and led by women | 10 |

Table 7 shows a range of Outcomes and indicators (OVIs) that are at times mandatory and in other cases optional depending on the Outcomes the partners have set and if they can be aligned. If not set by partners but seen as useful in hindsight they can also be added. Outcomes can in a way be defined as OVIs for objectives as can be seen in the overview in Figure 2.

|  |
| --- |
| Figure 3: Structure of a results framework to design PPP objectives from the N2Africa-Partner ones |

Figure 3 shows key milestones are a copy-selection of the results framework. Outcomes level Key milestones from Table 7 are a re-structured version of the original Results Framework.

The objectives of N2Africa will remain intact but the levels and degree they will apply to a PPP (OVIs) depends on its scope. It was already priory assessed that the objectives of the partners are compatible with the N2Africa ones, as otherwise the partners would not have been selected. It is to look at the overlap with each partner while individually they can have more or less objectives.

The parameters are the type of legume crops, the specific areas, type and number of farmers targeted and how the legume crops fit into the common farming systems (i.e. cereals). Next are the treatments, improved technologies foreseen and in general the change of behaviour expected. Important is also the duration of the partnership and the targets and effect expected over time.

Technically the N2Africa project according to its Return of Investment (ROI) expects to achieve (1) an increase in yield and (2) area under cultivation for a certain target legume and its main cereal rotational crop so far specified as being maize although sorghum and Teff or others can be added.

A farmer household can be classified as an adopter if on a minimum surface of 100 m2 and for three seasons it uses at least two of the following N2Africa components i.e. (1) new variety, (2) additional legume, (3) fertilizer, (4) inoculums, and (5) improved agronomic practices.

Table 8: Key milestones with progress indicators in time, data are cumulative values

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Key Milestones** | **2014** | **2015** | **2016** | **2017** | **2018** | **Total** |
| At least 320 partners trained | 110 | 210 | 320 | 320 | 320 | 320 |
| Dissemination partners attain/surpass 550,000 target households | 71,250 | 157,500 | 253,750 | 385,000 | 555,000 | 555,000 |
| Local agro-dealers/companies marketing 12 kg of seeds for half an acre per household (Mt) | 885 | 1,890 | 3,045 | 4,620 | 6.660 | 6,660 |
| Local agro-dealers/companies marketing 20 kg fertilizer for half an acre per household (Mt) | 1,425 | 3,150 | 5,075 | 7,700 | 11,100 | 11,100 |
| Local agro-dealers/companies marketing 500 g of inoculant for half an acre per household (Mt) | 7 | 16 | 25 | 39 | 56 | 56 |
| Inoculants available through nr. of public-private suppliers in total. | 2 | 3 | 4 | 5 | 5 | 5 |
| At least half of the 555,000 households reached | 35,000 | 75,000 | 125,000 | 195.000 | 275,000 | 275,000 |

The figures in Table 8 present the Key Milestones for the project core (5) and tier-1 countries (6) combined. For a PPP specific targets can be set depending on the parameters defined, whilst the N2Africa key milestones seen in Table 8 will logically apply and can be calculated. The same is true on ROI seen for Tanzania an example in Table 9 and 10.

Table 9: The current status of legume and maize production for Tanzania

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Nr.** | **Crop** | **Legume (kg/ha)** | **Legume (ha/farm)** | **Maize (kg/ha)** | **Legume (kg/farm)** | **Maize (kg/farm)** |
| 1 | Soybean | 400 | 0.10 | 1,350 | 40 | 135 |
| 2 | Cowpea | 750 | 0.10 | 1,350 | 75 | 135 |
| 3 | Groundnut | 1,000 | 0.50 | 1,350 | 500 | 675 |
| 4 | Beans | 700 | 0.20 | 1,350 | 140 | 270 |
|  | **Total** |  | **0.9** |  | **755** | **1,215** |

Table 10: The new status of legume and maize production for Tanzania

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Nr.** | **Crop** | **Legume (kg/ha)** | **Legume (ha/farm)** | **Maize (kg/ha)** | **Legume (kg/farm)** | **Maize (kg/farm)** |
| 1 | Soybean | 600 | 0.20 | 2,025 | 120 | 405 |
| 2 | Cowpea | 975 | 0.13 | 1,620 | 122 | 203 |
| 3 | Groundnut | 1,500 | 0.63 | 1,755 | 938 | 1,097 |
| 4 | Beans | 910 | 0.25 | 1,620 | 228 | 405 |
|  | **Total** |  | **1.20** |  | **1,407** | **2,109** |

Other objectives OVIs relate to agronomy in case this is also incorporated in a PPP which would for instance be relevant for AGRA grantees. It aims to generate system recommendations for Delivery and Dissemination (D&D). Main topics to address: non-responsive soils, trials of untested varieties, input and management practices, the milestones are listed in Table 11.

Table 11: Cumulative milestones under the researcher managed agronomy cluster

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Milestones** | **2014** | **2015** | **2016** | **2017** | **2018** |
| 4.1. Recommendations for the intensification of legume production result in at least 50% increase in legume productivity (beneficiaries) | 7,000 | 15,000 | 25,000 | 39,000 | 55,000 |
| 4.1.2. By Q4 of years 2-4, improved legume production recommendations integrated in the dissemination campaigns (recommendations) | 1 | 1 | 2 | 3 | 3 |

In Table 11, the Milestone 4.1 is at objective level while 4.1.2 is an OVI at the Dissemination Pillar level i.e. research recommendations are gradually fed into the dissemination activities.

**Tasks:**

* Align the N2Africa objectives – milestones with the partners, put numbers – values on farmers to be reached (direct – indirect) target areas, crops, dissemination models;
* Assess other baseline data if available or present the N2Africa ones, agree on and set targets on yields, area under cultivation, technologies to be promoted and related inputs to be marketed;
* Jointly fill in the objectives – milestones OVIs as applicable, provisionally how and by whom they will be measures, learning and project (PPP) M&E tools, methods, samples etc.
* Assess targets against resources (budget, human, vehicles etc.) available by the partners against roles foreseen to achieve them, iteratively align targets with resources.

**Considerations:**

* Take over NGO project objectives, contribution and attribution aspects, basis of a PPP

### *Capacity Building*

Outcome: 1.4. Scientists and other stakeholder groups are empowered to further the N2Africa research and development

Outcome: x.x[[1]](#footnote-1) National teams leading all D2R activities

Activity: 1.8. Develop and implement a non-degree-related capacity strengthening plan for relevant partners working within legume value chains

Output: 1.8.1. By Q4 of year 1, a non-degree-related capacity strengthening plan developed

Output: 1.8.2. By Q4 of each year, at least 4 relevant and demand-driven training materials developed in cooperation with the African Soil Health Consortium (ASHC)

Output: 1.8.3. By Q4 of year 5, at least 320 partners from at least 32 stakeholder groups trained in N2Africa technologies and approaches

Capacity Building or Strengthening has recently turned out to be high on the list of partners desiring to collaborate with N2Africa. Their expectations are high in this respect and generally the needs are on agronomy as regards N2Africa technologies and learning M&E which it part of the N2Africa R4D approach. Demonstration plots are a commonly used tool but how to best set them up and which control, inputs and treatments to use and what data to collect remains a question mark.

The concept of going from Best Bet to Best Fit is appreciated but potential partners don’t understand how to set-up surveys and design from demonstration to adaptation plots. A recent AGRA-PASS grantees workshop showed great inconsistencies in data collection and inefficient tools (questionnaires) and methods (pen and paper), field books are often not used and Grantee staff lack basic knowledge while government extension staff they rely on are often not available.

Additional analyses like cost-benefit or even risk are very uncommon, but have become mandatory from main donors, whilst the motto to go beyond demos. In the design of N2Africa, capacity building as in Training of Trainers is foreseen by N2Africa staff while parallel to this, the IITA Ibadan Capacity Building unit organizes training programs for staff and partners as well.

During a partner workshop in Uganda, collaboration was agreed upon by World Vision (WV) and NASECO Seeds and both had a number of staff that would require capacity building on the above. To cover their target farmers in a project area, NASECO wanted 15 and WV 30 of the senior staff trained on Agronomy. WV had within its project also the more common training programs i.e. Pre-season, Mid-Season, Post harvest and storage, Market Access and Packaging. Normally Group formation and organization – dynamics are added to such packages and are part of near all projects.

The above illustrates that the capacity building needs, is what lacks in mainstream programs. For planning purposes a first step is to see how many targeted farmers can be reached within for instance one year by a ‘field technician’ (farmer trainer in whatever capacity) and how many field technicians can be trained within a x month program by one Trainer of Trainers. This will initially determine how many partners’ staff or affiliated persons should enrol in the N2Africa ToT program.

Other consideration are how farmers are organized already i.e. in case of WV-Uganda for a specific target area i.e. Kabaale sub-county, they work with 3,300 farmers organized in 110 groups of 30 members each, one could consider training 5 members, being farmers, and supplying enough farmer training materials to them so other group members can benefit as well. This means 550 farmers need to be trained on say 4 topics per year, each training session will comprise 15 farmers (3 groups) and take 2 day with another 2 days of preparation by the trainer or 4 days in total.

On the other hand a training session is to be completed within 1 month, and if a trainer can reasonably work 20 days a month, 5 sessions can be completed reaching 5 x 15 is 75 farmers. This means 550 divided by 75 is 7.3 trainers are required or say 8 to be on the safe side. These 8 trainers will work 4 months a year covering 4 topics. If a ToT per topic takes 7 days with a maximum number of trainers attending per session is 15, only 1 Master Trainer (ToT) is required to be trained by N2Africa and with preparation will take say 10 days per session and work 40 days a year. It is now N2Africa to avail the ‘Regional Trainer’ to train the Master trainer and if one topic takes 10 days will also be involved 40 days but have only trained one Master trainer eventually targeting 550 farmers direct and 2,750 farmers indirect assuming the 5 out of a group of 30 will teach the others.

On a national scale in for instance Nigeria, 110,000 farmers need to be reached in total over 4 years. Say in a particular year 20% or 22,000 farmers need to be trained on keeping their field books as a topic and this is planned for in one session but the training needs to be completed in 1 month. It takes a field staff 4 days to complete one training session with a maximum of 15 farmer participants each. The field staff can effectively work 20 days in that month and reach 75 farmers in 5 sessions. To achieve the target of 22,000 farmers, 293 field staffs are thus required. These 293 field staffs need to have been enrolled in a ToT session with say a maximum of 15 participants each, also to be completed within 1 month but assume the Master trainer can only work 10 days a month on this, which means 20 Master trainers are required to complete the task. The Master trainer would be the chosen recipients from partner NGOs – others to enrol in the N2Africa Capacity Building Program.

The 20 master trainers thus will undergo the N2Africa training on field book data collection and assume maximum 10 per session can be trained but the program is to be completed in 1 month. A session takes say 10 days and the N2Africa Regional Trainer can only work 10 days per month. This means 2 Regional trainers would be required. This scenario is seen in Table 1, Values 1.

Table 12: Outcomes from a capacity building planning worksheet, example Nigeria

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Parameters** | **Values 1** | **Values 2** | **Values 3** |
|  | Farmers total Nigeria | 110,000 | 110,000 | 110,000 |
|  | Percentage targeted for a training topic and session | 0.2 | 0.2 | 0.4 |
| 1 | Farmers targeted for a training topic and session | 22,000 | 22,000 | 44,000 |
| 2 | Number of farmers per session per topic | 15 | 15 | 15 |
| 3 | Period or months a topic to be completed | 1 | 2 | 1 |
| 4 | Field staff training duration in days per session-topic | 4 | 4 | 4 |
| 5 | Field staff working days per month for training | 20 | 20 | 20 |
| 6 | Field staff working days per period for training | 20 | 40 | 20 |
| 7 | Field staff number of training sessions per period | 5 | 10 | 5 |
| 8 | Field staff farmers reached per period per topic-session | 75 | 150 | 75 |
| 1 | Number of field staff required | 293 | 147 | 587 |
| 2 | Number of field staff per ToT session per topic | 15 | 15 | 15 |
| 3 | Period or months of a ToT session-topic to be completed | 1 | 1 | 1 |
| 4 | Master trainer training duration in days per ToT session-topic | 10 | 10 | 10 |
| 5 | Master trainer working days per month for (ToT) for training | 10 | 10 | 10 |
| 6 | Master trainer working days per period for (ToT) training | 10 | 10 | 10 |
| 7 | Master trainer number of training sessions per period | 1 | 1 | 1 |
| 8 | Master trainer field staff reached per period per topic-session | 15 | 15 | 15 |
| 1 | Number of Master trainers required | 20 | 10 | 39 |
| 2 | Number of master trainers per session-topic by Regional Trainer | 10 | 10 | 10 |
| 3 | Period or months of a regional ToT session-topic to be completed | 1 | 1 | 1 |
| 4 | Regional trainer training duration in days per ToT session-topic | 10 | 10 | 10 |
| 5 | Regional trainer working days per month for (ToT) for training | 10 | 10 | 10 |
| 6 | Regional trainer working days per period for (ToT) training | 10 | 10 | 10 |
| 7 | Regional trainer number of training sessions per period | 1 | 1 | 1 |
| 8 | Regional trainer master trainers reached per period per topic-session | 10 | 10 | 10 |
| 1 | Number of N2Africa Regional trainers required | 2 | 1 | 4 |

The parameters in grey will determine the design of the training program while the others are calculations. If one or more grey parameters change in value automatically the design changes as in field staff, master trainers and N2Africa Regional trainers required as well. If a training period for farmers can take 2 months only one N2Africa Regional trainers is needed. If 44,000 farmers need to be trained within a month, and all stays the same, 4 Regional Trainers would apply etc.

The design will be interactive as in also the number of field staff and master trainers available within an organization and in what capacity. If several topics need to be covered in an overlapping period and are not combined, one can make separate calculations for this and add them together. The planning will also assist in resource allocations and budgeting for a PPP, how much will it cost to reach a farmer by a field technician, what budget is (still) available, scale the plan up or down accordingly, take more time to complete a training session. In partner-led dissemination one would expect that most costs will be covered by the partner but N2Africa will pay for the Regional trainer, venue, training materials, but that can be ironed out on a case by case basis. Ideally a regional trainer time and reach is to be as efficient as possible, maximum participants – topics covered.

Looking at ‘*Output: 1.8.3. By Q4 of year 5, at least 320 partners from at least 32 stakeholder groups trained in N2Africa technologies and approaches*’ it should be added that on average for each partner (stakeholder group) 10 people are trained. Numbers differ per core and tier 1 country and an overview of how the Output 1.8.3. is set-up is seen in Table 13.

The figures in Table 3 are of course a ball park and can be flexible; the number of key topics is hereby not defined but will likely boil down to 4. With careful planning, one regional trainer can cover this for a country and perhaps 2-4 countries if not N2Africa staff but from the Ibadan Capacity Building unit and-or a combination of the two.

Table 13: Capacity Building non-degree training programs indicator set-up

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Country type** | **Nr. Countries** | **Partners/ country** | **People/ partner** | **Partners total** | **People total** |
| Core | 5 | 4 | 10 | 20 | 200 |
| Tier 1 | 6 | 2 | 10 | 12 | 120 |
| **Total** | **11** |  |  | **32** | **320** |

It may be clear that Output 1.8.3 directly influences – inter-relates with ‘Outcome 2.2.

* Dissemination partners attain/surpass the anticipated number of households targeted and continue to engage in legume intensification post-project’

With the indicator:

* # of targeted households (men/women) reached by dissemination partners;

And the definition:

* Number of households (farmers) who have been introduced to N2Africa technologies and continue to use the technologies;

*Note: Directly related to the ROI calculations considering both direct and indirect beneficiaries in the core and Tier-1 countries.*

Obviously and as deliberated on earlier, a capacity building program design in a PPP will also have to take into account both the N2Africa-led and Partner led dissemination models and the extent in which each will apply and farmers targeted by each plus topics to be covered etc. On average as per N2Africa design, 40% will be direct (N2Africa led) and 60% indirect (Partner-led) beneficiaries.

Tasks:

* Communicate to partners main topics foreseen in the N2Africa Capacity Building Pillar i.e. Agronomy in the R4D context, harmonization of data collection – tools-methods, M&E;
* Assess partner and sub-grantee capacity building needs that are within the N2Africa mandate;
* Communicate to the Country Coordinator, (S)BDO, Project leader, M&E specialist and Data Analyst, others above findings;
* Selected from the above as per subject matter, developed or yet to be completed Capacity Building Programs in collaboration with Ibadan Capacity Building unit are to be selected;
* Capacity Building Regional Trainer can be invited to further assess training needs on selected topics from the Master Trainer recipients selected by partners, number based on initial planning;
* A detailed training (ToT) program, per and-or across countries will be designed aligned with resources and staff available etc.

### *Dissemination*

Outcome: 2.3. Dissemination partners attain/surpass the anticipated number of households targeted and continue to engage in legume intensification post-project

Outcome: 3.2. Women improved their income from legume production and have a greater say in the use of such income

Outcome: 4.1. Recommendations for the intensification of legume production result in at least 50% increase in legume productivity

Outcome: 4.4. Overall farming system productivity and soil fertility status is improved through increased legume productivity

Outcome: 5.1. National system scientists use the GL x GR x E x M framework and the obtained information to advance legume research for development within their countries

Outcome: 5.2. Dissemination partners integrate effective and efficient dissemination approaches for legume technologies in their future development initiatives

Outcome: 5.3. Effective ICT tools provide information on legume production, management, and value addition beyond the project life

*Outcome: 5.5.1. By Q4 of year 4, the relative important of GL, GR, E, and M understood for specific legumes and production environments and integrated in improved recommendations*

*Outcome: x.x. Farmers, manufacturers and last mile delivery companies’ demand for inputs is quantified, explained and conditional parameters and their levels determined*

Activity: 2.2. Facilitate N2Africa-led gender specific dissemination campaigns ‘in the context of development-to-research learning cycles’

Output: 2.2.1. By Q1 of years 1-4, specific dissemination guidelines for legume intensification assembled

Output: 2.2.2. By Q4 of years 1-4, specific dissemination guidelines evaluated by a preset (see Returns-on-Investment calculations) number of male and female farmers

Activity: 2.3. Create widespread awareness on N2Africa technologies and interventions

Output: 2.3.1. By Q4 of years 1-4, at least 2 media events (e.g., radio, newspaper articles) per country implemented

Activity: 2.4. Facilitate partner-led dissemination campaigns with specific attention to gender

Output: 2.4.1. By Q4 of years 2-4, household targets (see Returns-on-Investment calculations), dissemination approaches, and content for partner-led dissemination activities agreed and implemented, with specific attention to gender

Output: 2.4.2. By Q4 of years 3-5, feedback on the performance of the dissemination models and the demonstrated content fed back to N2Africa

Activity: 3.3. Conduct dissemination campaigns targeting women farmers

Output: 3.3.1. By Q4 of years 1-4, themes and models for women-specific dissemination campaigns identified

Output: 3.3.2. By Q4 of years 2-5, at least 25% of the female farmers participating in the overall N2Africa dissemination activities are also actively engaged in the women-specific dissemination campaigns

Activity: 4.1. Develop variety x inoculant x nutrient management recommendations for the target legumes and legume production areas based on yield gap analysis

Output: 4.1.1. By Q4 of years 1-4, seasonal research campaigns towards legume intensification and yield gap closure implemented

Output: 4.1.2. By Q4 of years 2-4, improved legume production recommendations integrated in the dissemination campaigns

Activity: 5.1. Develop an innovative framework for strategic M&E, allowing for timely feedback loops

Output: 5.1.1. Throughout the project, a strategic M&E framework provides timely feedback to learning and future planning

Activity: 5.2. Set-up data collection, management, and analysis infrastructure

Output: 5.2.1. By Q4 of year 1, data management infrastructure is in place and data population initiated

Activity: 5.3. Conduct situation analysis, including the overall bio-physical, socio-cultural, and political environment and farming system and yield gap analysis for targeting legume interventions

Output: 5.3.1. By Q4 of year 1, information from the situation analysis available for the proper targeting of legume interventions

Activity: 5.4. Develop innovative ICT tools to collect data and provide feedback to stakeholder groups

Output: 5.4.1. By Q4 of year 2, prototype ICT tools for data collection and information provision validated

Output: 5.4.2. By Q4 of year 4, information on legume production, management, and value addition transferred to stakeholders using ICT tools

Activity: 5.5. Unravel GL x GR x E x M interactions for legume production towards the development of best-fit recommendations

*Output: 5.5.1. By Q4 of year 4, the relative important of GL, GR, E, and M understood for specific legumes and production environments and integrated in improved recommendations*

Activity: 5.6. Evaluate the effectiveness and efficiency of various D&D approaches for legume intensification

Output: 5.6.1. By Q4 of year 4, information on the effectiveness and efficiency of various D&D approaches for legume intensification available to dissemination partners

*Activity: x.x. Conduct market research on N2Africa promoted inputs among the target farmers, manufacturers and last mile delivery companies aligning demand and supply*

*Output: x.x. By Q4 of year 1-4 market research has been conducted merged with other data collection exercises on the demand for agro-inputs and their supply incentives*

The actual planning on dissemination within a PPP is not easily derived from the numerous activities, their outputs (deliverables) and related outcomes. They do give directions as to where the dissemination more specific tasks or to be determined sub-activities should lead to. The activities can serve multiple – inter-related purposes i.e. research, field staff – partner and farmer training, awareness creation, leading the process of R4D from Best-Bet to Best-Fit, understanding farmer demand for quality inputs and technologies, the SWOT towards behaviour change – adoption. It also relates to how efficient and effective data collection and information is managed.

Some activities are clearly N2Africa-led but at outcome level the findings have to flow back to the partners to improve their capacity to replicate improved recommendations, and further to the farmers that at outcome level are to benefit from N2Africa research – agronomy by higher yields.



Figure 4: AGRA Partnership results framework on Dissemination – Farmer Capacity Building

Perhaps in addition to the N2Africa dissemination Pillar, a summary of the Partnership results framework on a similar Pillar-Objective used by AGRA is represented in the Figure 4.

Looking at Figure 4, the most straightforward activity is like in N2Africa to establish demonstration and trial plots or within a PPP specify where, how many and with whom the N2Africa-led Dissemination Demonstration and Adaptation plots will be incorporated (see also Figure 4). This can be aligned with what partners intend to do with own dissemination activities and models. Also linked to the Capacity Building Pillar, often partners would like to follow the N2Africa dissemination and adaptation protocols, either fully or a small derivation from those. Some potential partners like Universities have shown interest in replicating N2Africa (long term) research plots.

Figure 3 activities on delivery overlap with Pillar 3, ‘Input demand information and supply’. But others are in line with dissemination activities of N2Africa i.e.:

* Educate farmers on the benefits of using quality seeds and technologies;
* Develop efficient models for the dissemination and commercialization of new seed varieties and other technologies;
* Conduct cost-benefit analysis of quality seeds varieties and other technologies for dissemination to farmers.

The Figure 4 objective is in line with the N2Africa and in general the objective of dissemination ‘*To improve the capacity of small-holder farmers to use quality seeds and technologies*’. The related outcome ‘*Expanded smallholder farmer access to knowledge and skills*’ is noticeably part of dissemination while the Figure 4 local delivery-seed system activities justify the adoption outcome, whilst this is split into 4 Pillars in a PPP where all need to be in place before adoption can happen.

What is missing in Figure 4 and in general in the AGRA framework are outcomes on productivity or soil fertility. These can logically be attributed to dissemination but if also attributed to improved input use (besides other best practices) can only be sustained if input supply is sustained as well.

In Figure 5 the physical layout or overview of N2Africa-led demonstration, adaptation, research and partner-led dissemination-demonstration plots can be seen. The research (R4D) boxes are optional in a PPP (case by case basis), and clearly defined as the role of N2Africa whereby partners-farmers get involved once sound recommendations are produced.

*N2Africa led dissemination*

The rationale of incorporating N2Africa-led dissemination within a PPP was explained earlier. As it will have significant budget implication, the part of plots needs to be planned well and also weighed against other methodologies i.e. media events. An important part of the budget on N2Africa dissemination will, however, be on the plots related training sessions i.e. FFS, pre-in-season, post harvest while the other important part of the budget needs to be designated to monitoring, data collection and capturing R4D processes including farmer-partner level evaluations that determine the way forward i.e. developing Best Fit recommendations, in short, strategic or learning M&E.

For details on plot management and ancillary activities, the agronomy master plan can be consulted while for the strategic or learning M&E details, the same applies for the M&E master plan.

*Development Partner led dissemination*

For partner and in this case NGO or development partner led dissemination or a hybrid thereof when private sector have been given resources from a development project or program, the N2Africa strategy is to support demo-plots and ancillaries (training sessions, data collection) via technical backstopping, networking, if relevant, foundation seed production, capacity building (pillar 1) and to ensure a joint M&E system is in place as per PPP agreement.

Planning hereby is to overlap the project documents and detail the dissemination activities and roles the parties will undertake, seek critical pathways (Gantt chart) as per normal project planning procedures, whilst limited to each partners’ mandate and with an iterative feedback loop to the capacity building and the input demand prediction & supply and marketing pillars. This can normally take place with a small group of key staff after which the draft PPP can be designed, shared and fine tuned, whilst following the format seen in Chapter IV.



Figure 5: N2Africa-led demonstration, adaptation, research and partner-led dissemination plots

*Private Sector led Dissemination*

Private sector led dissemination falls under marketing i.e. they want farmers to buy their products and having done a promising *feasibility study*, they will create awareness, promote, be assure in their communication (labels, leaflets) the farmer knows how to use it and if used properly clearly outline the benefits often also against the costs and may refer to independent scientific research results. They are present at fares, radio programs, television, magazines, newspapers, have commission sales agents, (semi-)extension staff, give out samples, do field demonstrations. This is all part of normal marketing strategies and applied for many agro-input products.

The level of success measured in expected and realized market share related to Private Sector dissemination (marketing) especially among small-holder farmers varies between countries, input- products and crops. Mineral fertilizer use is common for vegetables, especially if irrigated, but not on sorghum and legumes. In Kenya the combination of hybrid maize in favourable climate zones boosted fertilizer use. MEA is promoting Biofix using near all tools described above but the bulk of its market share are vegetable export companies and commercial farmers in Southern Africa.

Minjingu Mines and Fertilisers in Tanzania manufacture a promising and research accredited P fertilizer blends, dissemination activities are in place but small-holder market penetration is still very low despite thriving prices and market pull for legumes in Tanzania. NASECO Seed in Uganda has certified soya and common bean seeds in its portfolio, has a large extension network on the ground and related dissemination activities but had as a main market NGOs like World Vision (WV) that would distribute those for free, whilst WV recently changed towards sustainability.

For N2Africa the input supply chains are (1) inoculants for soya bean, (2) legume-P fertilizer, (3) certified to quality legume seeds and (4) ancillary inputs related to pest management, improved cereal-legume rotations (i.e. P-containing cereal fertilizers) and labour saving technologies.

Towards the end of the N2Africa project duration, the above 4 product categories of which the first 3 are core (milestones in defined quantities) need to be sustainably (financial) supplied to small-holder farmers by private sector entities i.e. and outcome related to Pillar 3. Dissemination (marketing) by the private sector is, as explained above, hereby part of their business as well as production and distribution. Currently supply is hardly happening and the private sector is reluctant to invest significantly or as ‘required’ in dissemination as commercial interest is limited and opportunity costs are high. To trigger this process the demand for these inputs need to be predicted, quantified and mapped. Mapped hereby means locating (segments of) widely scattered farmers and spatially aggregate demand over time to base a production and distribution strategy on.

In short the business case that is to be made from the product’s feasibility analysis is as yet incomplete and both N2Africa and development partner led dissemination serve the purpose to complete this before partner-led dissemination (investment therein) can be expected to happen. A first step hereby is to ensure dissemination activities include (if partly missing) data collection that feed back into a product’s feasibility analysis and before that to ascertain the dissemination strategies, models and design is *compatible* with what is needed for a credible feasibility analysis.

The above means dissemination based on the assumption that once farmers are aware, have the capacity and have seen – experienced (*definition of reached?*) the use of the inputs will automatically have a demand for it, is often *not enough*. More so as the input supply chains are rather complex i.e. inoculants are very new to most farmers, certified legumes seed are often farmer multiplied and shared and for some seasons and the demand will stall for some time before fresh certified-quality seed is desired again, farmers are reluctant to put fertilizers on legumes.

Dissemination as it is currently designed will allow farmers to make informed decisions but there are dozens of other reasons farmers may or may not want to buy-use certain inputs that are difficult to unravel-predict and highly dynamic, hence demand varies over time.

Considering the work that has already been done by N2Africa, most critical elements are covered for a feasibility analysis i.e. technical; cost-benefit analysis on Best Bet practices but lagging behind is a comprehensive market analysis (research) amongst farmers-other actors (see Figure 6). The fact that with N2Africa-Partner led dissemination there will be many valuable interactions with farmers, it requires relatively little extra investment to build on this a proper market analysis, whilst this is a discipline in its own right and needs to be appropriately planned and budgeted for.



Figure 6: Feasibility Study: A schematic Diagram

The details of how to set-up the market analysis can be worked out in a separate document but it suffices to conclude that dissemination serves to make a business case for the private sector input suppliers. This needs to start early on in the project, with timely private sector involvement in the right target areas, hence linking back to the planning phase of a PPP.

So far, interactions with the private sector to enter into a PPP resulted in reactions like, *tell us where to deliver and we will supply; we stopped with groundnut seeds as the demand is unpredictable; once every two years we sell our certified seeds as grain, we can produce any quantity and blend.*

With a component of market analysis in a PPP this attitude may shift to a more active involvement. How to move from market analysis to a sustainable input demand prediction information system over longer periods of time is further dealt with under Pillar 3.

*Media events*

Activity: 2.3. Create widespread awareness on N2Africa technologies and interventions

Output: 2.3.1. By Q4 of years 1-4, at least 2 media events (e.g., radio, newspaper articles) per country implemented

Media events are a common tool in private sector marketing efforts. It is also common in public services across all sectors for many years. Like market research and capacity building, under the umbrella name ‘communication’ of which media is a component, it is a discipline on its own. IITA Ibadan has besides a Capacity Building also a Communication unit. Moreover, N2Africa will have a part-time Wageningen based Communication’s expert, while partner organizations like AGRA, CABI and the Humid Tropics are also actively involved in communication.

After or during a media event, there are specialized ‘products’ developed by for instance Nielsen, Taylor Nelson Sofres and the Kenya based Mediae to track the effect of a media campaign. Mediae recently won the Harvesting Nutrition prize for Shamba Shape Up, a make-over television programme guiding small scale farmers on agricultural topics in an engaging yet informative way.

Taking the above a step further, Grameen Foundation set-up a considerable infrastructure using the Community Knowledge Workers (CKW) that have many thousands of profiled farmers in a database and after a media-extension campaign have call centres to track its effect and a team of specialist to answer farmer questions, whilst CKWs to interact and follow up with farmers.

Assuming awareness created through a media event has been successful; the question that remains to be answered for N2Africa is how does that reflect back to the outcome indicators? N2Africa and partners can measure with their target farmers how many were exposed to the messages from the event and how this inclined them to change their legume cultivation practices. This would then be in an exposure in addition to demo-adaptation plots and ancillary trainings and materials. M&E would eventually assess how many ‘adopted’ and be able to ask the farmers contribution – attribution questions as to what type of exposure motivated the farmers to what degree.

Any audience beyond the above system of engaging target farmers would be more complex as to reflect the media event (i.e. radio) to the outcome indicators. Input suppliers could record higher sales after the media events but that is more anecdotal evidence of a spill-over effect if not reflected back to the recipients (farmers) the message was meant for. A sample of farmers can ‘tracked’ if their mobile phone numbers are known, Mediae normally requests farmers to SMS if they want to know more (thereby capturing their mobile numbers) and has a database of people that watch their program which they send a questionnaire, their enumerators can even do face-to face interviews.

The first step will remain, however, to design a script for the messages N2Africa wants to convey using a particular media outlet (i.e. radio, television). Since in Phase-I and also currently media events have been implemented, an inventory of this would be useful. Second there needs to be a strategic decision how to coordinate and support N2Africa staff that want to implement a media event which can be part of the *Communication Master plan*. Third what professional services need to be engaged for specific (i.e. location, crop, technology) events and if only on agronomy or also (parts of) the whole value chain i.e. showing farmers the buyers, who make, sell the inputs etc. Once a professional media house is engaged, they will asks many questions to develop a communication plan according to ones needs, target audience etc. and will make an offer-budget. A list of potential media companies like Farm Africa can be generated including some due diligence.

Lastly, one has to see how the effect will be tracked, what additional interactions should take place if any i.e. can farmers call in, face-book type of services, who manages that at what cost etc. What will be the objective i.e. create general interest so more NGOs will be knocking on the door of N2Africa (is more Objective 1 using the Podcaster, Website) or to measure N2Africa indicators.

*ICT Tools*

Outcome: 5.3. Effective ICT tools provide information on legume production, management, and value addition beyond the project life

Activity: 5.4. Develop innovative ICT tools to collect data and provide feedback to stakeholder groups

Output: 5.4.1. By Q4 of year 2, prototype ICT tools for data collection and information provision validated

Output: 5.4.2. By Q4 of year 4, information on legume production, management, and value addition transferred to stakeholders using ICT tools

ICT tools are a *method* of data collection or better said computer[[2]](#footnote-2) aided data collection. Its only purpose is to avoid endless heaps of pen and paper questionnaires, forms, delivery notes, vouchers etc. These may get lost, are wrongly entered in a central system and-or the information eventually generated from them is severely delayed and cannot be used effectively anymore. Reference can hereby be made to a presentation of an advanced ICT tool FarmForce developed by Syngenta Foundation. With or without electronic data collection, for the presentation of information a platform can be used i.e. a website with different dashboards where people can access information.

The innovation hereby is that after the computer and internet (electronic data transfer) that many farmers now have a mobile phone i.e. can be reached much easier and cost-effectively than before. Farmers can be called send and receive an SMS and can answer a simple programmed query to receiving voice or picture messages towards all the computer application a smart phone can handle.

‘*Effective ICT tools provide information on legume production, management, and value addition*’ prototypes can be obtained ‘off the shelf’ and many NGOs-companies are promoting them. They need to be tailored (additional programming) to specific needs i.e. a dairy versus a soya bean supply chain. Unless the system is driven by a buyer within a controlled out-grower scheme, serves certification (organic, others) of high value products (export vegetables, dairy, tea, coffee) immediately the financial sustainability issue comes in, as well as who can effectively access this information and who will and what infrastructure should be in place to collect, manage the data.

The soft and hardware for data collection are minor issues and a wide range is readily available. A data collection and information plan to serve information needs for the different purposes and recipients needs to be carefully designed and planned upon, again this is a discipline by itself. It also relates iteratively to the design of actual data collection tools i.e. forms, questionnaires.

*Actual data collection tools are by far the most difficult and crucial part of a survey, data-information collection plan.* It is beyond the scope of this Master Plan to elaborate on how to design a data collection tool iteratively with a data collection- analysis– information-reporting plan, whilst wherever data are to be collected *a task force is to be established proficient with this discipline*.

To give an impression of what the above may entail is that before a quantitative data collection tool is finalized it normally is preceded by a considerable desk-research and qualitative phase, field testing, dry runs on the analysis of raw data and ensuring the information required can be derived. All questions need to be unequivocal i.e. having only one possible meaning or interpretation. This means also it has the same meaning and interpretation for the enumerators and the respondents. Limiting bias in a multi-social cultural, literacy environment can be an art by itself.

To avoid data collection tools to be too straining on the respondents, as much as possible proxies need to be incorporated in the analysis i.e. a farmers enters – says *3 times weeding* for a particular soya bean plot and plot size, mono-cropped.

Preliminary research will have established that in a particular area – season and year this means 20 labour hours per ha per weeding at a rate of $0.60 per day or a cost of about $40 per ha. It is in a labour shortage time and a woman activity, opportunity costs are also $40, as if not on this plot labour could have been hired out. Weeds cannot have been a cause for low yields as 3 times is Best Practice and rains were normal. Harvest was for instance *10 sacks*. Weight of a sack at farm level is known to be about 90 kg, 10% impurities and considering the planting date – giving the harvest date, dry soya in the area was going at $0.25 per kg at farm level.

If only main market prices are known, the likely farm gate price can be calculated back as per preliminary research. Plot GPS data can pinpoint the distance, road infrastructure from the main market to estimate transport cost. A harvest of 10 sacks for a particular plot size is known to be a ‘good’ yield in the area; questions on constraints may be skipped. Farmers keep 10% seed, a household of 6 keeps 30 kg for home consumption. Farmers sell their surplus as in 40% at harvest, 30% after 2 months, 30% if the next season crop is well established and if not keep 30%. Time series price data are collected centrally and revenue can be calculated without asking directly.

This is an example of how proxy – secondary data can avoid straining data collection tools and also biases but requires proper preliminary research and data collection plans on secondary sources. It is to first model what happens in the field and looking for key variables-raw data from respondents explaining the variations. Questions on attitude, perceptions, opinions, intentions are less straightforward but if it is known that in a 30 km radius there is not outlet selling inoculants and no plans to do so, one does not have to ask farmers if they are going to buy them for the next season.

The success of ICT or computer aided data collection thus heavily depends on a well tested, understood initial data collection tool – questionnaire. Programming a questionnaire on for instance a Tablet is easy although what can go wrong is the routing one can build in and requires testing. Routing is one of the major advantages of using a programmed questionnaire. One can for instance cover questions – variables-value options on 20 crops – varieties related to 10 different plots per farmer which on pen and paper will be over 100 pages and impossible to administer.

But routing can go like what crops did you grow last season (say only soya), on how many plots (say 3) using one or different varieties (only one and is named), home saved or other sources of seeds (say all home saved), mono-or also intercropped (say only mono), any mineral fertilizer used (say yes) on how many plots, one or more (say one), and per soya plot, planting date, spacing, which fertilizer at planting, topdressing, how much (only applies now for one coded plot) etc.

It can be that this information could have been filled in a pen and paper field book, but still the enumerator can transfer the data with the farmer to a programmed questionnaire. This can improve the quality of the data (missing, out of reach – unrealistic, wrong place used to enter) but also important is that each enumerator has exactly the same variable set-value options located at the same place in the central database that is being generated. The data will go to the cloud, straight to the analyst who merges all data (values) in one variable format. The analyst can immediately do a quality check (although wrong entry is no longer possible) but missing, out of reach data remain.

A programmed questionnaire can also contain the *market research on inputs* section. This is strongly linked to agronomic data as one will know what has actually been used, the outcome and why it worked or not. Still a farmer can have a few crop failures in a row but will still want to buy inoculant, a certified legume seed variety and P-fertilizer and vice versa even if yields have been good on dissemination plots. Having one database, a simple answer that a farmer will-intents to buy 2 packets of LegumeFix from agro-dealer x for the next season or not at all, can easily be correlated to all other demographic and agronomic data that thus are potentially explainable variables.

### *Input demand information and supply*

Outcome: 2.1. Country-specific inoculant, seed, and fertilizer supply strategies guarantee the sustainable supply of high quality seeds and inoculants and legume-specific fertilizer

Outcome: 2.3. Local agro-dealers marketing fertilizer, seed, and inoculants are aligned with grass-root producer groups and input wholesalers and manufacturers

Outcome: 3.4. Women use pre- and post-harvest labour-saving tools, resulting in higher net profits from legume production and processing

Activity: 2.5. Facilitate private-public partnerships towards the sustainable supply of inoculants and fertilizer

Output: 2.5.1. By Q4 of years 1-4, inoculants available through public-private partnerships, through importation and/or local production, the latter facilitated by the inoculant production pilot plant

Output: 2.5.2. By Q4 of years 1-4, legume-specific fertilizer made available to smallholder farmers by fertilizer companies/retailers

Activity: 2.6. Facilitate the establishment of private sector-led and/or community-based legume seed systems

Output: 2.6.1. By Q4 of years 1-4, sufficient legume foundation seed produced by private enterprises and/or government institutions

Output: 2.6.1. By Q4 of years 1-4, sufficient quality legume seed available to farming communities

Activity: 2.7. Engage agro-dealer and other last-mile delivery networks in supplying legume agro-inputs

Output: 2.7.1. By Q4 of years 1-2, a minimum number of agro-dealers and other delivery network partners trained in the storage, handling, and use of inoculants

Output: 2.7.2. By Q4 of years 2-5, agro-dealer and other last-mile delivery networks engaged in the commercial supply to farmers of agro-inputs, including inoculants

Activity: 3.2. Assess business opportunities for women in agro-input supply (*and legume marketing and value addition*) opportunities

Output: 3.2.1. By Q4 of years 2-4, business opportunities for women identified

Output: 3.2.2. By Q4 of years 4-5, at least 2 (*input*) businesses led by women established per country

Activity: 3.4. Develop labour-saving pre- and post-harvest legume tools for female farmers

Output: 3.4.1. By Q4 of year 2, prototype labour-saving pre- and post-harvest tools for female farmers validated

Output: 3.4.2. By Q4 of years 2-4, labour-saving tools included in the various dissemination campaigns

Activity 2.5 ‘*Facilitate private-public partnerships towards the sustainable supply of inoculants (seeds) and fertilizer*’ has been argued being too limited without taking into account the larger picture of what is required to achieve its related Outcome: 2.1. ‘*Country-specific inoculant, seed, and fertilizer supply strategies guarantee the sustainable supply of high quality seeds and inoculants and legume-specific fertilizer*’ and Outcome: 2.3. ‘*Local agro-dealers marketing fertilizer, seed, and inoculants are aligned with grass-root producer groups and input wholesalers and manufacturers*’. Activity: 2.6. ‘*Facilitate the establishment of private sector-led and/or community-based legume seed systems’* would mean PPPs only apply to inoculants and fertilizers, while logically the same principles-strategies apply for all 3 types of inputs.

In line with to the above, the inputs related to Outcome: 3.4. ‘*Women use pre- and post-harvest labour-saving tools, resulting in higher net profits from legume production and processing*’ also follow the same principle – approach and strategy as for the other inputs.

Recently it has become clear that production – manufacturing-imports of all the above inputs in most countries is not an issue. They can be readily produced and distributed as soon as the demand is fostered under ‘Dissemination’ and related Market research findings are used for a feasibility analysis and business case to the private sector motivating them to start the supply chains. Seeds require more planning and management as well as extra chain actors in the production process.

Consolidated ‘Dissemination’ efforts are to result in the below addition to the Results Framework:

* Outcome: x.x. Farmers, manufacturers and last mile delivery companies’ demand for inputs is quantified, explained and conditional parameters and their levels determined;
* Activity: x.x. Conduct market research on N2Africa promoted inputs among the target farmers, manufacturers and last mile delivery companies aligning demand and supply;
* Output: x.x. By Q4 of year 1-4 market research has been conducted merged with other data collection exercises on the demand for agro-inputs and their supply incentives.

Demand hereby applies first to farmers and with their pull, the supply chain actors will see to equal demand to deliver. ‘Explained’ is powerful information to get confidence in the business and give input to ‘conditional parameters and their levels determined’. These parameters will likely be made up by yields related profits, costs, perceived risks (i.e. market, climate), access to finance, skills, knowledge, capacity, gender issues (workload) and what are ‘killer’ levels, acceptable to optimal ones and how they relate i.e. can one low level be compensated by another higher one. The above will give input to pricing versus market share information and a related distribution strategy.

The above will also allow the design of interventions and use resources for them optimally to increase sales i.e. if the workload becomes too much while other levels are ok and a 50% credit can be given to herbicides (if the agro-dealer is ok with this), adoption rates can go from 30 to 60% by this and this type of farmers. A buyer may then perhaps decide to guarantee the agro-dealer etc.

Unravelling the above information can be assigned to MSc. Students and will be rather time consuming and costly per farmer, whilst would make sense to be limited to a sample of target farmers as part of Dissemination learning M&E, but is also to be planned and budgeted for.

Input demand information under Pillar 3 is, however, different from the Dissemination Pillar 2 as in it intends to facilitate *a long term sustainable commercial information brokering system*. The ground work justifying and designing the system is hereby done largely under Pillar 2. Input demand can be highly dynamic depending on many variables including word of mouth spill-over effects of the N2Africa project. Adoption may spread as a wildfire as seen with Irish potato and sesame varieties in Kenya and Nigeria consecutively. Legume seeds, as explained earlier, have an added complexity of unpredictable usage (own multiplication, sharing).

Looking at the most complex shackle in the input supply chain being seeds, other inputs can be tackled in its slipstream i.e. the above mentioned information system is best designed for seeds. Design considerations depend on the level of farmer organization on ground and their linkages-relationship and communication network with the suppliers. A strong farmer association can in principle collect and aggregate input demand information from their members and communicate this to a seed company sufficiently in advance. N2Africa may assist in setting up such a system.

In any case it should be realized that *a long term sustainable commercial information brokering system* implies the existence of a new private sector chain actor or an existing one with an additional role. Moreover, input suppliers being the recipients or information clients of such a system are to be agreeable paying a sustainable fee for these services.

Examples exist on Irish potatoes in Kenya and a recently approved concept note to AGRA STTP in Tanzania on the same crop whereby legumes are added. Both are based on having a large number of farmers in a database from which demand information using short computer aided questionnaires is being obtained. More information-details can be shared, but it suffices for this Master Plan to create awareness and outline the option of facilitating such a systems. Budget wise this can be limited to in kind activities under Dissemination, whilst for the actual set-up by the private sector partner grant application can be facilitated, Tanzania being an example thereof.

At a more local level or close relationship-communication environment systems can be seen in place as for instance women producing quality cowpea seeds in Rwanda. They know their market and customers and the system is already doing well. This can be replicated to other areas as an intervention under Pillar 3. Moreover, their capacity can be built to periodically ‘refresh’ their stock through obtaining foundation or certified seeds of perhaps also new-improved varieties.

In Nigeria Activity: 2.6. ‘*Facilitate the establishment of private sector-led and/or community-based legume seed systems’* is being pursued and considerations will be given to ensure a market for these seeds as cases are known where this is only partially successful and sustainability challenged. Strong buyers within outgrower schemes may also take up the role of seed-input suppliers, examples can be seen in Ethiopia on chickpea and to some extent Uganda with Mukwano on soya.

In conclusion, it is essential to realize that Pillar 2, ‘*Dissemination’* is for an important part a means to an end being Pillar 3 ‘*Input demand information and supply*’. Pillar 3 is in its characteristics of activities more outcomes related rather than being real activities, the latter are mostly to take place under Dissemination but require a view towards achieving Pillar 3 as well. Involving private sector input suppliers by means of a PPP is hereby an important step as they can give guidance as to what the project cause should be for them to take up their Pillar 3 related designated roles.

### *Marketing*

Outcome: 2.2. Smallholder agri-business clusters generate incentives to expand and intensify legume production through profitable access to markets for legume grains and derived products

Outcome: 3.3. Better knowledge of and access to household-level legume processing tools improves the nutritional status of women and children in at least 2 target countries

Outcome: 4.3. Farmers invest actively in the production of more and higher quality livestock feed to support livestock production

Activity: 2.8. Establish agri-business clusters around legume marketing and value addition

Output: 2.8.1. By Q4 of years 1-4, opportunities for collective marketing and value addition for smallholder farmer associations identified

Output: 2.8.2. By Q4 of years 1-4, a preset (see Returns-on-Investment calculations) number of households engaged in the collective marketing and value addition of legume grains and value-added products

Activity: 3.2. Assess business opportunities for women in (agro-input supply and) legume marketing and value addition opportunities

Output: 3.2.1. By Q4 of years 2-4, business opportunities for women identified

Output: 3.2.2. By Q4 of years 4-5, at least 2 (output) businesses led by women established per country

Activity: 3.5. Evaluate the impact of environment (E) and management (M) on nutritional quality of legume grain

Output: 3.5.1. By Q4 of year 3, relationships between grain nutritional quality and management / environmental conditions quantified

Activity: 3.6. Develop legume product-enriched food baskets for smallholder families

Output: 3.6.1. By Q4 of year 1, food consumption and diversity scoped for at least 2 Core Countries

Output: 3.6.2. By Q4 of years 2-4, validated legume processing technologies for improved household nutrition utilized by at least 5,000 women

Activity: 4.3. Intensify crop-livestock interactions through enhancing feed availability of legume crop residues

Output: 4.3.1. By Q4 of year 2, niches for use of legume crop residues within and between farms identified

Output: 4.3.2. By Q4 of years 3-4, feed availability and quality enhanced through appropriate use of grain legume residues

* Outcome: 2.2. Smallholder agri-business clusters generate incentives to expand and intensify legume production through profitable access to markets for legume grains and derived products
* Activity: 2.8. Establish agri-business clusters around legume marketing and value addition
* Output: 2.8.1. By Q4 of years 1-4, opportunities for collective marketing and value addition for smallholder farmer associations identified
* Output: 2.8.2. By Q4 of years 1-4, a preset number of households engaged in the collective marketing and value addition of legume grains and value-added products

Linking to the Pillar of Input demand information and supply, a clear contribution on Marketing for the N2Africa project is to facilitate the availability of improved varieties. Improved hereby means besides yield, disease resistance that due to their traits also fetch a better market. This needs careful considerations and be aligned and balanced with farmer and market preferences. A variety can have a better market – price but its production traits (i.e. drought resistance, early-late maturing, shattering and residue yield) do not outweigh the somewhat better price. Also farmers tend to mix up seed varieties if new ones are introduced, being both detrimental to the production and market.

In most countries new varieties have been screened against market attractiveness and there are clear favourite varieties in the field although they can vary from (climate) region to region. Some varieties fetch a good local and others export market like chickpea in Tanzania. In Uganda the old *red beauty* variety with negative production traits compared to new ones has such a strong market preference that it seems fruitless to promote new varieties until market traits can be matched.

Seed companies prefer a portfolio of only one variety per crop and also know what sells well. They can be a good source of information when designing dissemination plots and ancillary activities.

Groundnuts have in principle a very good export market and specific (white-large) varieties are preferred of which most also have favourable production traits. But unless aflatoxin is controlled it would not be worthwhile to promote this. An extra activity can be developed to control aflatoxin for a specific groundnut export chain in collaboration with partners and a number of development projects have aflatoxin control as an intervention. IITA BIP Aflasafe can boost these efforts.

For the bulk of the N2Africa project PPPs the outcome, activity and outputs foundation is laid by ensuring in the analysis phase ‘*to be barking (dissemination) up the right tree*’. This means operate in areas with a satisfactory level of market access and profitability for legumes. This can be checked by meeting with processors, aggregators, farmers, input suppliers etc. and partner NGOs.

It is often doubtful to assume farmers and other chain actors have not organized themselves along an efficient supply chain, that they are not transparent and free flow of information is constrained. Moreover, it is near standard operating procedures (SOP) of NGOs to address these and other issues (present or not) including the formation of agri-business clusters (ABCs) or derivations thereof. Ideal is a situation where a legumes value chain project is implemented including strong partners in input and output marketing like the case of World Vision, NASECO and Mukwano in Uganda.

As deliberated earlier, the N2Africa technologies are already complex to turn into sustainable supply chains and adding a variable of lack of market, unless with clear prospects on improvement, will be detrimental to the project’s success. Output market related improvements that require considerable resources are beyond the means of N2Africa and will largely have to be contributed by other development projects and-or the private sector. Since N2Africa is targeting only a small percentage of a country’s legumes farmers, it is therefore most efficient to select target areas with a conducive market environment, whilst contain small-holder as well as other types of farmers.

Reporting on the objective 2 activities, outputs and outcomes may raise the question of attribution and contribution as the real activity is more 1.3. *Engage research, development, private sector, and other relevant partners in each of the target countries* and 1.3.1. *By Q2 of year 1, potential partners operating within priority legume value chains mapped.* Added to mapped is also selected on certain criteria (see also Figure 2 on adoption conditions).

It will be for the project management to communicate this shift in approach to the donor and possibly adjust the results frame. Considering the budget structure there will, however, be no or little revision required. In cases the project does somehow contribute to the objective 2 activities, it can be reported as intended and this will also be reflected in a PPP agreement.

* Outcome: 3.3. Better knowledge of and access to household-level legume processing tools improves the nutritional status of women and children in at least 2 target countries.
* Activity: 3.2. Assess business opportunities for women in (agro-input supply and) legume marketing and value addition opportunities
* Output: 3.2.1. By Q4 of years 2-4, business opportunities for women identified
* Output: 3.2.2. By Q4 of years 4-5, at least 2 output market businesses led by women established per country
* Activity: 3.6. Develop legume product-enriched food baskets for smallholder families
* Output: 3.6.1. By Q4 of year 1, food consumption and diversity scoped for at least 2 Core Countries
* Output: 3.6.2. By Q4 of years 2-4, validated legume processing technologies for improved household nutrition utilized by at least 5,000 women

The objective 3 marketing – processing or value adding related outcome, activity and outputs, whereby output 3.2.2 is actually and outcome level indicator, first task is to create ‘*a basket of options*’ on (small-scale) processing – value adding successful or promising technologies.

A second task is to generate – collect business ideas from women (nascent) entrepreneurs and evaluate them on their feasibility (see Figure 6). This can be against a list of criteria which can be readily availed and are also used for instance by AGRA SSTP to select concept notes. If the idea does not originate from local entrepreneurs one will be at risk the project may not be sustainable.

Next is to look for funding opportunities if need be, AGRA-SSTP can be one of the many options and a list of organizations that have the mandate to fund this type of initiatives can be generated. The objective 3 component seen above can be turned into a separate PPP for each entrepreneur.

Recent encounters with NGOs for instance CRS in Nigeria revealed they have very similar components in their project called ‘*Support to Vulnerable Households for Accelerated Revenue Earnings* (SHARE)’. In general women business generation is a common component in development projects and a lot of information can also be obtained from the website, organizations like GAIN and UNICEF to familiarize oneself on the issue. N2Africa can assess how to contribute to such projects to do the feasibility analysis, introduce certain legumes, networking etc.

The major considerations are often if people will want to change-adjust their eating habits and if the small-medium enterprise (SME) is really private sector driven to ensure sustainability. Sufficient examples exist of successful blends i.e. white sorghum, soya and amaranthus porridge flour. Soya being roasted as a snack for children to take to school in Uganda and a project in Afghanistan where traditional foods changed its ingredient to soya but not the original product-taste. An example from Ethiopia showed that chickpea processing on a larger scale can reduce the cost compared to homemade *Shiro* (a popular chickpea based sauce) by 50%.

At real house-hold level legume processing tools basically the same applies as at SME level, only that the investment is minimal but still needs to meet consumer satisfaction either as a new dish or a blend – ingredient that improves existing recipes in their nutritional content.

* Activity: 3.5. Evaluate the impact of environment (E) and management (M) on nutritional quality of legume grain
* Output: 3.5.1. By Q4 of year 3, relationships between grain nutritional quality and management / environmental conditions quantified

Activity 3.5 can be approached from a marketing perspective as well, will the extra measures, efforts (if any) pay off against the extra nutritional benefits. For instance USAID adopted the approach to have agricultural interventions being tracked to consumer level effects on both market and nutrition. An example can be iron as a micro-nutrient and its effect on the iron content of the grains to tackle iron deficiencies in children and women. It is stated, however, as a research activity and a first step would be to set-up a proficient task force to coordinate this activity.

* Outcome: 4.3. Farmers invest actively in the production of more and higher quality livestock feed to support livestock production
* Activity: 4.3. Intensify crop-livestock interactions through enhancing feed availability of legume crop residues
* Output: 4.3.1. By Q4 of year 2, niches for use of legume crop residues within and between farms identified
* Output: 4.3.2. By Q4 of years 3-4, feed availability and quality enhanced through appropriate use of grain legume residues

Legume crop residues can also be approached from a marketing perspective, although all Pillars would apply being only a separate ‘product type’ from grains and following the extra step from animal feed to animal products (i.e. meat, milk) as end-products. The main knowledge base on livestock feed is present at the implementing partner organization ILRI.

Crop residues has basically 2 components i.e. (1) legume varieties that produce more and-or higher quality residues compared to others and-or stay green during – after picking while other dry up and (2) as an ingredient or more optimal use in livestock feed towards a Total Mix Ration (TMR) whereby oil seed cake, grains, maize-sorghum stalks, maize bran ingredients are fed-mixed in an optimal way into diets designed for different livestock categories and usages (i.e. dairy cows, beef cattle, sheep-goats, pigs, poultry-eggs-meat) of which legume residues is one such ingredient.

One can also preserve – storage legume residues of which an example is silo-facil (<http://www.invento.com.co/product_silo_1.html>) making silage out of crop residues that can be done within and between farms or even at SME level. The silage can be sold or used on-farm during dry season. Tasks can be to assess what are current practices in a certain region-country, list a ‘*basket of options*’ for possible improvements along the above components, conduct a feasibility analysis and set-up a pilot i.e. the typical steps that can be laid down within or made a separate PPP.

# Format Of An N2Africa PPP Agreement

Below is a draft format of what can be the content of a PPP with a Development Partner implementing a Legume Value Chain Project, Private Sector Partners or a combination of both. A PPP is basically meant to be implemented without exchange of monetary resources, each party finances their own roles and so called ‘grants’ or subcontracts i.e. for N2Africa led dissemination can be included in a PPP but require a separate grant agreement which can be annexed to a PPP.

Moreover, there can be a more general MoU to collaborate, a Letter of Intent (LoI) or pre-teaming agreement that specifies certain (urgent) activities that may later develop in a PPP agreement. Formats and examples of grant agreements, MoUs and LoIs can be obtained on requests.

The activities, outputs and outcomes in the N2Africa approved results framework are at times too general to be gainfully included in a PPP (see an overview Annex I). Some are still ‘under construction’ and partners like AGRA may have developed more detailed ones although even in their ‘Grant Agreements’ applicants are encouraged to develop their own specific ones.

The N2Africa results framework partly serves as a direction a PPP is to take, the Dissemination Master Plan serves to re-structure them under the 4 Pillars and to ensure each is addressed within the below PPP format, the Pillars can be hereby be considered PPP ‘*Objectives*’ on which Outcomes, Outcome Indicators, Activities, Outputs and Output Indicators are built (see Figure 1).

## Introduction

* *Background of meetings, interactions partners ambitions, core business, project etc.*
* *How the partnerships complement each other, areas of overlap*

## Reasons and ambition of the partnership

* *Main problems, bottlenecks to be addressed and their inter-relation at all levels*
* *How the partnerships will address these problems*

## Detailed description of target areas

## Crops, varieties and farming systems descriptions

* *List crops and varieties, their current and improved status expected*
* *Interventions per crop and area*
* *Milestones in inputs marketed, return on investment calculations*

## Detailed description of target groups

* *Direct and indirect beneficiaries numbers and type of farmer households*
* *Other chain actors, details (names, type) and numbers*
* *Stakeholders and their description, details*

## Goal

* *Describe the Goal and impact level indicators, parameters, calculations and assumptions*
* *Milestones at impact level*

## Pillar 1: Capacity building

Relevant N2Africa Indictors to be considered with Annex i reference number

|  |
| --- |
| 22: Outcome: National teams leading all D2R activities  25: Output: By Q4 of year 5, at least 320 partners trained in N2Africa technologies and approaches  26: Output: By Q4 of year 1, country-specific research and dissemination implementation plans formalized, including an exit strategy |

### *Expected outcomes*

* *Outcome indicators on capacity building, parameters, calculations and assumptions*

### *Key and secondary partners and their roles*

### *Key Activities and their outputs*

### *Tasks details*

* *Detailed tasks and their description, roles and responsibilities and timeline*
* *How the tasks related to other activities and outputs*

## Pillar 2: Dissemination

Relevant N2Africa Indictors to be considered with Annex i reference number

|  |
| --- |
| 9: Outcome: Dissemination partners attain/surpass the anticipated number of households targeted and continue to engage in legume intensification post-project  12: Outcome: Dissemination partners integrate effective and efficient dissemination approaches for legume technologies in their future development initiatives  13: Outcome: Women improved their income from legume production and have a greater say in the use of such income  18: Outcome: By Q4 of year 4, the relative important of GL, GR, E, and M understood for specific legumes and production environments and integrated in improved recommendations  19-20: Outcome: Recommendations for the intensification of legume production result in at least 50% increase in legume productivity  23: Outcome: Effective ICT tools provide information on legume production, management, and value addition beyond the project life  26: Output: By Q4 of year 1, country-specific research and dissemination implementation plans formalized, including an exit strategy  29: Output: By Q4 of years 1-4, at least 2 media events (e.g., radio, newspaper articles) per country implemented  35: Output: By Q4 of years 2-4, improved legume production recommendations integrated in the dissemination campaigns  38: Output: Throughout the project, a strategic M&E framework provides timely feedback to learning and future planning  39: Output: Effective ICT tools provide information on legume production, management, and value addition beyond the project life  Others suggested:   * Outcome: x.x. Farmers, manufacturers and last mile delivery companies’ demand for inputs is quantified, explained and conditional parameters and their levels determined; * Activity: x.x. Conduct market research on N2Africa promoted inputs among the target farmers, manufacturers and last mile delivery companies aligning demand and supply; * Output: x.x. By Q4 of year 1-4 market research has been conducted merged with other data collection exercises on the demand for agro-inputs and their supply incentives. |

### *Expected outcomes*

* *Outcome indicators on Dissemination, parameters, calculations and assumptions*

### *Key and secondary partners and their roles*

### *Key Activities and their outputs*

### *Tasks details*

* *Detailed tasks and their description, roles and responsibilities and timeline*
* *How the tasks related to other activities and outputs*

## Pillar 3: Input demand information and supply

Relevant N2Africa Indictors to be considered with Annex i reference number

|  |
| --- |
| 10: Outcome: Local agro-dealers marketing fertilizer, seed, and inoculants are aligned with grass root producer groups and input wholesalers and manufacturers  15: Outcome: Women use pre- and post-harvest labour-saving tools, resulting in higher net profits from legume production and processing  17: Outcome: By Q4 of years 4-5, at least 2 businesses led by women established per country  26: Output: By Q4 of year 1, country-specific research and dissemination implementation plans formalized, including an exit strategy  30-31: Output: By Q4 of years 1-4, inoculants available through public-private partnerships, through importation and/or local production, the latter facilitated by the inoculant production pilot plant  37: Output: By Q4 of year 2, standard operating procedures of the production, quality control and application of inoculants used by inoculant producers and retailers |

### *Expected outcomes*

* *Outcome indicators on Input demand information and supply, parameters, calculations and assumptions*

### *Key and secondary partners and their roles*

### *Key Activities and their outputs*

### *Tasks details*

* *Detailed tasks and their description, roles and responsibilities and timeline*
* *How the tasks related to other activities and outputs*

## Pillar 4: Marketing

Relevant N2Africa Indictors to be considered with Annex i reference number

|  |
| --- |
| 11: Outcome: A preset (see Returns-on-Investment calculations) number of households engaged in the collective marketing and value addition of legume grains and value-added products  14: Outcome: Better knowledge of and access to household-level legume processing tools improves the nutritional status of women and children in at least 2 target countries  16: Outcome: Diversified nutritious diets accessible to poor and women farmers  17: Outcome: By Q4 of years 4-5, at least 2 businesses led by women established per country |

### *Expected outcomes*

* *Outcome indicators on Marketing, parameters, calculations and assumptions*

### *Key and secondary partners and their roles*

### *Key Activities and their outputs*

### *Tasks details*

* *Detailed tasks and their description, roles and responsibilities and timeline*
* *How the tasks related to other activities and output*

## Governance

## Contributions

### *Budget and cost-share*

### *Financial reporting*

## Risks and risk management

## Other agreement conditions

## Monitoring and Evaluation

Relevant Indictor to be considered with Annex i reference number

|  |
| --- |
| 40-41: Output: Evaluate the effectiveness and efficiency of various D&D approaches for legume intensification  42: Output: By Q4 of year 4, the sustainability of legume interventions for smallholder farmers evaluated through impact assessment studies |

* *Details on learning M&E data collection tools and methods, roles and responsibilities*
* *Details on project (PPP) M&E data collection tools and methods, roles and responsibilities*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Indicator** | **Definition** | **Disaggregation** | **Means of verification** | **Frequency of measure-ment** | **Baseline** | **Target** | **Target year 1** | **Target year 2** |
| Impact |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Outcome |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Output |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |

Budget template

Year: (*replicate table for each year);* Partner name: (*replicate table for each key partner involved*)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **Unit type** | **Nr. Units** | **Unit value** | **Total** | **Notes** |
| Staff position and % of time | Days |  |  |  |  |
| Consultancies |  |  |  |  |  |
| Equipment |  |  |  |  |  |
| Supplies |  |  |  |  |  |
| Communication |  |  |  |  |  |
| Other costs |  |  |  |  |  |
| Travel local |  |  |  |  |  |
| Travel international |  |  |  |  |  |
| Field operation and others |  |  |  |  |  |
| Workshops, training & field days |  |  |  |  |  |
| TOTAL |  |  |  |  |  |

# Glossary of Acronyms

|  |  |  |
| --- | --- | --- |
|  | A&A | Adaptation and Adoption |
|  | BDO | Business Development Officer |
|  | BMGF | Bill and Melinda Gates Foundation |
|  | D&D | Delivery and Dissemination |
|  | D2R | Development to Research |
|  | FLO | Field Liaison Officer |
|  | M&E | Monitoring and Evaluation |
|  | ICT | Information Communication Technology |
|  | INGO | International Non- Governmental Organisation |
|  | IPM | Integrated Pest Management |
|  | LNGO | Local Non- Governmental Organisation |
|  | LoI | Letter of Intent |
|  | N2Africa | Putting nitrogen fixation to work for Smallholder farmers in Africa |
|  | OVI | Objectively Verifiable Indicator |
|  | PPP | Public Private Partnership |
|  | SAC | Scientific Advisory Committee |
|  | ToT | Training of Trainers |
|  | TOC | Theory of Change |
|  | WU | Wageningen University |

# Annex I: Overview of the N2Africa Indicators and related details

|  |  |
| --- | --- |
| Nr. | 1 |
| Level | IMPACT |
| Objective | 2, 3,4 |
| Key Milestones | Increased income (gender disaggregated) of targeted legume smallholder farmers |
| Indicator | % change in farmers’ (men/women) net household income (or farm activity) |
| Baseline |  |
| N2Africa Target (End Project) |  |
| Definition of indicator(s) / Interpretation | Additional net farm income, % change in the net income from farm activity, (Per capita expenditures as a proxy for net farm income targeted farmers based on the assumption that increased expenditures is strongly correlated to increased income). Disaggregated by gender to also capture the gender dimension of impact/ inequality |
| Calculation method | Total expenditure on all household items of selected beneficiaries in year 2 minus year 1/year 1\*100. |
| Unit of measurement | Percentage |
| Data source | Survey of selected beneficiaries |
| Method | The definition assumes that the value of home consumption of self-produced food and non-cash household expenses are not influenced by the intervention. |
| Level of collection | Farmer (sample both male and female) |
| Frequency | Beginning of project and end of project-5th year) |
| Responsible | External organization selected for impact evaluation with supervision from Leadership team |
| How | Data on expenditure are collected at farmer level by formal surveys. Sampling is required given the size of the targeted household |

|  |  |
| --- | --- |
| Nr. | 2 |
| Level | IMPACT |
| Objective | 2, 3,4 |
| Key Milestones | Increased income (gender disaggregated) of targeted legume smallholder farmers |
| Indicator | % of farmers (men/women) with increased income |
| Baseline | None |
| N2Africa Target (End Project) | At least 25% women (100,000 women) |
| Definition of indicator(s) / Interpretation | The % of target households with increased income and at least 25% of whom should be women. |
| Calculation method | Count all sampled households with increased income; divide by the total sampled household multiply by 100. Disaggregate by gender |
| Unit of measurement | Percentage |
| Data source | Sampled targeted households |
| Method | Household survey (Through impact assessment) |
| Level of collection | Targeted Household |
| Frequency | Baseline end of project |
| Responsible | External organization selected for impact evaluation with supervision from Leadership team |
| How | Total number of farmers with increased income and disaggregated by gender |

|  |  |
| --- | --- |
| Nr. | 3 |
| Level | IMPACT |
| Objective | 3 |
| Key Milestones | Improved nutritional status of beneficiary women and children |
| Indicator | Legume-based protein intake per woman & child |
| Baseline | None |
| N2Africa Target (End Project) | 25% |
| Definition of indicator(s) / Interpretation | Note: Improvement of legume-based protein intake of at least 25% among women and children within the targeted households in 2 countries |
| Calculation method | Food patterns and diversity is based on the types and frequency of foods consumed, and major sources of energy and selected nutrients using agreed weighted records for specific days/seasons. This will be done for selected women among participating house |
| Unit of measurement | Percentage |
| Data source | Sampled targeted women and children |
| Method | survey |
| Level of collection | Sampled Women from targeted household and children |
| Frequency | Baseline end of project |
| Responsible | External organization selected for impact evaluation with supervision from Leadership team |
| How | Sampled women and children among the target household will be surveyed for their nutritional status |

|  |  |
| --- | --- |
| Nr. | 4 |
| Level | IMPACT |
| Objective | 3 |
| Key Milestones | Improved nutritional status of beneficiary women and children |
| Indicator | # of women & children with at least 25% legume-based protein intake |
| Baseline | None |
| N2Africa Target (End Project) | 5,000 |
| Definition of indicator(s) / Interpretation | Women and children whose legume-based protein intake is 25% or more |
| Calculation method | Count the number of women and children with legume-based protein intake of 25% and beyond. These should be people participating in the survey |
| Unit of measurement | Percentage |
| Data source | Survey report |
| Method | Survey/case study |
| Level of collection | Sampled households involving women and children |
| Frequency | First and last year of project implementation |
| Responsible | Gender team |
| How | Sampled women and children among the target household will be surveyed for their nutritional status |

|  |  |
| --- | --- |
| Nr. | 5 |
| Level | IMPACT |
| Objective | 2, 4 |
| Key Milestones | Sustainable use of natural resources |
| Indicator | % target households using inputs within sustainable rotations (target households using improved farming systems) |
| Baseline | None |
| N2Africa Target (End Project) |  |
| Definition of indicator(s) / Interpretation |  |
| Calculation method | (# target households using inputs within sustainable rotations/total target households)\*100 |
| Unit of measurement | Percentage |
| Data source | Impact assessment report |
| Method | Survey of target households |
| Level of collection | Target household |
| Frequency | First and last year of project implementation |
| Responsible | External organization selected for impact evaluation with supervision from Leadership team |
| How | Data on the use of inputs will be collected from sampled households |

|  |  |
| --- | --- |
| Nr. | 6 |
| Level | IMPACT |
| Objective | 1, 2 |
| Key Milestones | National capacity to pipeline emerging legumes technologies for smallholder farmers developed |
| Indicator | # of national institutions leading emerging legume technologies |
| Baseline | None |
| N2Africa Target (End Project) |  |
| Definition of indicator(s) / Interpretation | National institutions involved in legume technology development are developing new legume technologies |
| Calculation method | Count the number of national institutions per country leading new legume technology development for smallholders |
| Unit of measurement | Number |
| Data source | list of national institutes involved in legume technology development and their related technologies developed per country |
| Method | Survey |
| Level of collection | Target countries national institutions |
| Frequency | Beginning and end of project |
| Responsible | External organization selected for impact evaluation with supervision from Leadership team |
| How | List of national institutes will be obtained and their level of involvement in new legume technologies identified. This will help to identify their capacities |

|  |  |
| --- | --- |
| Nr. | 7 |
| Level | IMPACT |
| Objective | 2 |
| Key Milestones | Sustainable input supply systems for legumes at national level |
| Indicator | Volume of inputs produced and sold by selected input producers and suppliers |
| Baseline | None |
| N2Africa Target (End Project) |  |
| Definition of indicator(s) / Interpretation | Specific inputs (inoculants, fertilizers and seeds) as supported by N2Africa and needed by producers are produced and supplied by input producers and suppliers |
| Calculation method | Sum up volume of specific inputs produced and sold by input producers in target countries |
| Unit of measurement | Tons |
| Data source | Survey report of input producers |
| Method | Survey |
| Level of collection | Target input producers and suppliers at national levels |
| Frequency | Beginning and end of project |
| Responsible | External organization selected for impact evaluation with supervision from Leadership team |
| How | Sampled list of target input producers and suppliers and their respective volumes produced and sold. Major buying clients will be identified as well. |

|  |  |
| --- | --- |
| Nr. | 8 |
| Level | OUTCOME |
| Objective | 1 |
| Key Milestones | 1.3. Partners along the legume input and output value chains cooperate actively towards achieving the overall N2Africa goals |
| Indicator | # of partnerships developed |
| Baseline | None |
| N2Africa Target (End Project) | 32 |
| Definition of indicator(s) / Interpretation | A partnership is considered developed if there is a binding documentation of roles and responsibilities to disseminate N2Africa technologies and focusing on one of the following: capacity building, market and input supply system. Partnerships should include National teams/organisations involved in D2R activities (Note: At least 4 partnerships per country by year 4 for the core countries and 2 for the Tier-1 countries) |
| Calculation method | Count the total number of partnerships developed every six months in each country. Figures are tracked every six months. Aggregation is done by summation for all countries. |
| Unit of measurement | Number |
| Data source | Project progress report |
| Method | Desk review |
| Level of collection | Country level |
| Frequency | Every six months |
| Responsible | BDOs |
| How | BDOs will count per country the number of partnerships developed |

|  |  |
| --- | --- |
| Nr. | 9 |
| Level | OUTCOME |
| Objective | 2 |
| Key Milestones | 2.2. Dissemination partners attain/surpass the anticipated number of households targeted and continue to engage in legume intensification post-project |
| Indicator | # of targeted households (men/women) reached by dissemination partners |
| Baseline | None |
| N2Africa Target (End Project) | 555,000 |
| Definition of indicator(s) / Interpretation | Number of households (farmers) who have been introduced to N2Africa technologies and continue to use the technologies. Note: Directly related to the ROI calculations (considering both direct and indirect beneficiaries in the core and Tier-1 countries) |
| Calculation method | Count the total number of households targeted by dissemination partners every six months in each country. Figures are tracked every six months. Aggregation is done by summation for all countries. |
| Unit of measurement | Number |
| Data source | Partners records books |
| Method | Desk review |
| Level of collection | Dissemination Partners |
| Frequency | Every six months |
| Responsible | BDOs |
| How | BDOs will collect recorded figures from dissemination partners |

|  |  |
| --- | --- |
| Nr. | 10 |
| Level | OUTCOME |
| Objective | 2 |
| Key Milestones | 2.3. Local agro-dealers marketing fertilizer, seed, and inoculants are aligned with grass root producer groups and input wholesalers and manufacturers |
| Indicator | Volume of seeds, fertilizers and inoculants used per targeted producer groups per land area |
| Baseline | Limited |
| N2Africa Target (End Project) | 6660; 11,100; 56 |
| Definition of indicator(s) / Interpretation | Quantities of inputs (fertilizers, inoculants & seeds) that are needed by targeted producer groups and are supplied by local agro-dealers. Note: 12 kg of seeds, 20 kg fertilizer, and 500 g of inoculant for half an acre per household; figures given are ton seed; ton fertilizer; ton inoculant |
| Calculation method | Sum up quantities of listed inputs from producer groups and divide by the total area used. Inquire if all were obtained from local agro dealers |
| Unit of measurement | Tons |
| Data source | Members of selected producer groups, |
| Method | interview of sampled farmers |
| Level of collection | Targeted farmer groups |
| Frequency | Per season |
| Responsible | BDOs & Partners |
| How | BDOs & Partners will collect volumes of listed inputs from sampled farmers of targeted producer groups |
| Nr. | 11 |
| Level | OUTCOME |
| Objective | 2 |
| Key Milestones | 2.4. A preset (see Returns-on-Investment calculations) number of households engaged in the collective marketing and value addition of legume grains and value-added products |
| Indicator | # of individual households (men/women) engaged in collective marketing, value addition of legumes and value added products |
| Baseline | None |
| N2Africa Target (End Project) | 275,000 |
| Definition of indicator(s) / Interpretation | Individual households involved in collective marketing, value addition and value added products. To avoid double counting, a household's involvement will be based on time spent in a particular activity. Note: At least half of the 555,000 households reached (refer to impact on households in the RoI calculations) |
| Calculation method | Count the total number of targeted households (gender disaggregated) involved in collective marketing, value addition and value added products every six months in each country. Figures are tracked every six months. Aggregation is done by summation for all countries. |
| Unit of measurement | Number |
| Data source | Partners records books |
| Method | Interview |
| Level of collection | Targeted households |
| Frequency | Every six months |
| Responsible | BDOs & Partners |
| How | BDOs & Partners categorize targeted households into listed segments |

|  |  |
| --- | --- |
| Nr. | 12 |
| Level | OUTCOME |
| Objective | 2 |
| Key Milestones | 2.5 Dissemination partners integrate effective and efficient dissemination approaches for legume technologies in their future development initiatives |
| Indicator | # of dissemination partners integrating effective and efficient N2Africa technologies in their programmes across target countries |
| Baseline | None |
| N2Africa Target (End Project) | 16 |
| Definition of indicator(s) / Interpretation | Note: Number of partners (including National organisations) taking forward N2Africa technologies within their respective dissemination programs across the target countries beyond the partnership with N2Africa |
| Calculation method | Count the total number of partners who have integrated N2Africa technologies in their programmes |
| Unit of measurement | Number |
| Data source | Copies of partners implementation plans |
| Method | Desk review and Direct observation |
| Level of collection | Dissemination Partners |
| Frequency | Every six months |
| Responsible | BDOs |
| How | BDOs will check the existence/observe the integration of N2Africa technologies in partner programmes |

|  |  |
| --- | --- |
| Nr. | 13 |
| Level | OUTCOME |
| Objective | 3 |
| Key Milestones | 3.2. Women improved their income from legume production and have a greater say in the use of such income |
| Indicator | # of women with increased income |
| Baseline | None |
| N2Africa Target (End Project) | 100,000 |
| Definition of indicator(s) / Interpretation | Note: At least 25% of households targeted with a delay of 1 year |
| Calculation method |  |
| Unit of measurement | Number |
| Data source |  |
| Method |  |
| Level of collection |  |
| Frequency |  |
| Responsible |  |
| How |  |

|  |  |
| --- | --- |
| Nr. | 14 |
| Level | OUTCOME |
| Objective | 3 |
| Key Milestones | 3.3. Better knowledge of and access to household-level legume processing tools improves the nutritional status of women and children in at least 2 target countries |
| Indicator | # of women with access to household level-legume processing technologies |
| Baseline | None |
| N2Africa Target (End Project) | 5,000 |
| Definition of indicator(s) / Interpretation | Targeted women in at least 2 countries are using developed household level-processing technologies |
| Calculation method | Count total number of targeted women using household processing technologies or sample women (size based on population of target households in a country) for interview. Then extrapolate the total % |
| Unit of measurement | Number |
| Data source | Partners records books, project records of targeted households |
| Method | interview (Survey) |
| Level of collection | Women among targeted households |
| Frequency | Annually |
| Responsible | Partner |
| How | Partners will interview sampled women |

|  |  |
| --- | --- |
| Nr. | 15 |
| Level | OUTCOME |
| Objective | 3 |
| Key Milestones | 3.4. Women use pre- and post-harvest labour-saving tools, resulting in higher net profits from legume production and processing |
| Indicator | # of women using pre and post-harvest labour saving tools |
| Baseline | None |
| N2Africa Target (End Project) | 55,500 |
| Definition of indicator(s) / Interpretation | Number of women among the targeted households using pre and post harvest labour saving tools. The tools must be developed by N2Africa. Note: At least 10% of the households targeted (see RoI calculations) |
| Calculation method | Count the total number of women among the targeted households sampled using pre and post harvest labour saving tools. Reasons why women use or not the labour saving tools |
| Unit of measurement | Number |
| Data source | Survey report indicating # of women and tools being used |
| Method | interview/sampled survey |
| Level of collection | Women among targeted households |
| Frequency | Annually |
| Responsible | Dissemination Partners |
| How | Dissemination partners will verify from the women among their targeted households how many are using labour saving tools. Also observation of sampled women is encouraged |

|  |  |
| --- | --- |
| Nr. | 16 |
| Level | OUTCOME |
| Objective | 3 |
| Key Milestones | Diversified nutritious diets accessible to poor and women farmers |
| Indicator | % of poor and women households using legume-enriched products |
| Baseline | None |
| N2Africa Target (End Project) |  |
| Definition of indicator(s) / Interpretation | Poor and women households using any of the legume enriched products should be counted. |
| Calculation method | Count and extrapolate households using legume enriched products developed by N2Africa. Reasons why households use or not the products |
| Unit of measurement | Number |
| Data source | poor and women households |
| Method | interview/survey |
| Level of collection | targeted households |
| Frequency | Annually |
| Responsible | M&E Team |
| How | Sampled households(stratified as poor and women) will be interviewed |

|  |  |
| --- | --- |
| Nr. | 17 |
| Level | OUTCOME |
| Objective | 3 |
| Key Milestones | 3.2.2. By Q4 of years 4-5, at least 2 businesses led by women established per country |
| Indicator | # of businesses established and led by women |
| Baseline | None |
| N2Africa Target (End Project) | 10 |
| Definition of indicator(s) / Interpretation | Businesses led by women are same as businesses owned by women. Businesses can focus on any aspect of the selected legume value chains, from input supply through to processing and marketing. Note: At least 2 per core county gives 10 in total |
| Calculation method | Obtain the list of businesses collaborating with N2Africa and its partners. Count the total number of businesses led by women |
| Unit of measurement | Number |
| Data source | List of businesses collaborating with N2Africa and its partners |
| Method | Interview |
| Level of collection | Business owners |
| Frequency | Annually |
| Responsible | M&E Team |
| How | Check the ownership status |

|  |  |
| --- | --- |
| Nr. | 18 |
| Level | OUTCOME |
| Objective | 3 |
| Key Milestones | 5.5.1. By Q4 of year 4, the relative important of GL, GR, E, and M understood for specific legumes and production environments and integrated in improved recommendations |
| Indicator | # of quantified relationships integrated in improved recommendations |
| Baseline | None |
| N2Africa Target (End Project) | 16 |
| Definition of indicator(s) / Interpretation | Note: 1set of recommendations for the 16 legume x country combinations (see Table 1 of the proposal) |
| Calculation method | Count the number of quantified relationships integrated in improved recommendations |
| Unit of measurement | Number |
| Data source | Recommendations on improved technologies |
| Method | Desk review |
| Level of collection | improved recommendation documents |
| Frequency | Annually |
| Responsible | Project Agronomy team |
| How | Agronomy team will check how many sets of recommendations are integrated in dissemination plans |

|  |  |
| --- | --- |
| Nr. | 19 |
| Level | OUTCOME |
| Objective | 4 |
| Key Milestones | 4.1. Recommendations for the intensification of legume production result in at least 50% increase in legume productivity |
| Indicator | % legume productivity among target households |
| Baseline | None |
| N2Africa Target (End Project) | 0.5 |
| Definition of indicator(s) / Interpretation | % change in yield of targeted legumes per specific land area |
| Calculation method | Additional yield increase as a percentage of totals. Sum of (production at individual household / individual land area planted). Aggregated at household level sampled |
| Unit of measurement | Percentage |
| Data source | Sampled households from targeted households |
| Method | Survey/case study |
| Level of collection | Targeted households |
| Frequency | Annually |
| Responsible | M&E Team |
| How | Target households will be sampled and interviewed |

|  |  |
| --- | --- |
| Nr. | 20 |
| Level | OUTCOME |
| Objective | 4 |
| Key Milestones | 4.1. Recommendations for the intensification of legume production result in at least 50% increase in legume productivity |
| Indicator | # of target households (men/women) with 50% increased productivity |
| Baseline | None |
| N2Africa Target (End Project) | 275,000 |
| Definition of indicator(s) / Interpretation | Households with 50% increase in productivity. Note: at least 50% of the target households (see RoI calculations) reach at least 50% increase in legume productivity |
| Calculation method | Count the total number of targeted households with 50% increase in yield. Extrapolate the figure from the sampled target for productivity |
| Unit of measurement | Number |
| Data source | Sampled households from targeted households |
| Method | Extrapolate from sampled targeted households those with 50% increase |
| Level of collection | Targeted households |
| Frequency | Annually |
| Responsible | M&E team |
| How | Target households will be sampled and surveyed for productivity data |

|  |  |
| --- | --- |
| Nr. | 21 |
| Level | OUTCOME |
| Objective | 4 |
| Key Milestones | 4.2. Inoculant producers avail improved inoculant formulations for the target legumes resulting in at least 10% increase in legume productivity and BNF |
| Indicator | # of inoculant formulations applied/used by inoculant producers for target legumes in core countries |
| Baseline | None |
| N2Africa Target (End Project) | 3 |
| Definition of indicator(s) / Interpretation | Inoculant producers make use of improved inoculant formulations for target legumes. Note: At least 1 formulation per core country for cowpea, beans, and groundnut |
| Calculation method | Count number of inoculant formulations used by producers for target households |
| Unit of measurement | Number |
| Data source | Inoculant producers |
| Method | Observation and testing of inoculants produced |
| Level of collection | Inoculant producers sites |
| Frequency | Annually |
| Responsible | Country Agronomy/Rhizobiology teams |
| How | Agronomist can visit or test samples of inoculants produced |

|  |  |
| --- | --- |
| Nr. | 22 |
| Level | OUTCOME |
| Objective | 4 |
| Key Milestones | National teams leading all D2R activities |
| Indicator | # of D2R activities led by national teams |
| Baseline | None |
| N2Africa Target (End Project) |  |
| Definition of indicator(s) / Interpretation | D2R activities should be led by national institutions. National teams |
| Calculation method | Count the total number of D2R activities led by national institutions |
| Unit of measurement | Number |
| Data source | National teams/ institutions |
| Method | Interview |
| Level of collection | National teams at D2R centers |
| Frequency | Every six months |
| Responsible | BDOs |
| How | BDOs |

|  |  |
| --- | --- |
| Nr. | 23 |
| Level | OUTCOME |
| Objective | 5 |
| Key Milestones | 5.3. Effective ICT tools provide information on legume production, management, and value addition beyond the project life |
| Indicator | # of ICT tools used by partners |
| Baseline | None |
| N2Africa Target (End Project) | 4 |
| Definition of indicator(s) / Interpretation | Note: At least 4 ICT tools by the end of the project |
| Calculation method | Count number of ICT tools used by partners without N2Africa support |
| Unit of measurement | Number |
| Data source | Partner data collection system |
| Method | Observation |
| Level of collection | Partner organizations |
| Frequency | Annually (starting from second year) |
| Responsible | M&E Team |
| How | M&E team will observe the systems of selected partner organisations |

|  |  |
| --- | --- |
| Nr. | 24 |
| Level | OUTPUT |
| Objective | 1 |
| Key Milestones | 1.4.1. By Q3 of year 1, an internal and external communication strategy developed |
| Indicator | Project wide internal and external communication strategy developed |
| Baseline | None |
| N2Africa Target (End Project) | 1 |
| Definition of indicator(s) / Interpretation | Note: 1 project-wide strategy, to be delivered in year 1 |
| Calculation method |  |
| Unit of measurement | Number |
| Data source | Project progress report |
| Method | Observation & desk review |
| Level of collection | Project management |
| Frequency | 1st year only |
| Responsible | Project Management team |
| How | Project Management team will assess the communication strategy |

|  |  |
| --- | --- |
| Nr. | 25 |
| Level | OUTPUT |
| Objective | 1 |
| Key Milestones | 1.4. By Q4 of year 5, at least 320 partners trained in N2Africa technologies and approaches |
| Indicator | # of partners trained in N2Africa technologies and approaches |
| Baseline | None |
| N2Africa Target (End Project) | 320 |
| Definition of indicator(s) / Interpretation | Trained persons will be selected from partners involved in dissemination of N2Africa technologies and approaches. Note: 10 persons per partner (see line 13) |
| Calculation method | Count the total number of partners trained. Aggregation is done by summation for all countries. |
| Unit of measurement | Number |
| Data source | Training reports, list of participating partners from organizations |
| Method | Desk review of reports |
| Level of collection | Partner organizations |
| Frequency | Annually |
| Responsible | BDO |
| How | BDO will collect list from partner organizations |

|  |  |
| --- | --- |
| Nr. | 26 |
| Level | OUTPUT |
| Objective | 1 |
| Key Milestones | 1.5.1. By Q4 of year 1, country-specific research and dissemination implementation plans formalized, including an exit strategy. |
| Indicator | # of specific research and dissemination plans formalized |
| Baseline | None |
| N2Africa Target (End Project) | 5 |
| Definition of indicator(s) / Interpretation | The plans will contain a sustainable exist strategy for each country. It will also indicate how research and dissemination will be conducted. Note: 1 plan per core country to be delivered in year 1 |
| Calculation method | Count the formalized research and dissemination plans per country and sum up the total |
| Unit of measurement | Number |
| Data source | Plans |
| Method | Desk review of the plans |
| Level of collection | Country level |
| Frequency | First year |
| Responsible | Country research and dissemination teams |
| How | Each country research and dissemination teams will prepare and formalize specific plans |

|  |  |
| --- | --- |
| Nr. | 27 |
| Level | OUTPUT |
| Objective | 1 |
| Key Milestones | 1.7.1. By Q4 of year 1, a research plan, engaging at least 5 PhD and 10 MSc candidates, developed |
| Indicator | # Project wide research plan to engage PhD and MSc students developed |
| Baseline | None |
| N2Africa Target (End Project) | 1 |
| Definition of indicator(s) / Interpretation | Note: 1 project-wide plan to be delivered in year 1 |
| Calculation method | 1 project wide plan |
| Unit of measurement | Number |
| Data source | Project plan |
| Method | Desk review of project plan |
| Level of collection | Project Management Level |
| Frequency | First year |
| Responsible | Project Management team |
| How | PMT will ensure the plan contains all elements of research and at least engages both PhD and MSc students |

|  |  |
| --- | --- |
| Nr. | 28 |
| Level | OUTPUT |
| Objective | 1 |
| Key Milestones | 1.7.1. By Q4 of year 1, a research plan, engaging at least 5 PhD and 10 MSc candidates, developed |
| Indicator | # of PhD and MSc students (men/women)engaged |
| Baseline | None |
| N2Africa Target (End Project) | 15 |
| Definition of indicator(s) / Interpretation | These students must base their research activities on the project wide plan for research |
| Calculation method | Count total number of students (PhD and MSc) disaggregate by gender in each project country |
| Unit of measurement | Number |
| Data source | Country six monthly progress reports |
| Method | Desk review |
| Level of collection | Country level |
| Frequency | Every six months |
| Responsible | Country Coordinators |
| How | Country Coordinators will count and report in six monthly reports the number of students |

|  |  |
| --- | --- |
| Nr. | 29 |
| Level | OUTPUT |
| Objective | 2 |
| Key Milestones | 2.3.1. By Q4 of years 1-4, at least 2 media events (e.g., radio, newspaper articles) per country implemented |
| Indicator | # of media events implemented |
| Baseline | None |
| N2Africa Target (End Project) | 50 |
| Definition of indicator(s) / Interpretation | Media events are those events organised for the purposes of dissemination activities. The number counted should be disaggregated by types of media events. Note: 10 media events per year across the core countries |
| Calculation method | Count the number of media events implemented per country and sum up the total |
| Unit of measurement | Number |
| Data source | Country six monthly progress reports |
| Method | Desk review |
| Level of collection | Country level |
| Frequency | Every six months |
| Responsible | Country Coordinators |
| How | Country Coordinators will count and report in six monthly reports the number of media events organised |

|  |  |
| --- | --- |
| Nr. | 30 |
| Level | OUTPUT |
| Objective | 2 |
| Key Milestones | 2.5.1. By Q4 of years 1-4, inoculants available through public-private partnerships, through importation and/or local production, the latter facilitated by the inoculant production pilot plant |
| Indicator | # of inoculant outlets in the target areas |
| Baseline | 2 |
| N2Africa Target (End Project) | 5 |
| Definition of indicator(s) / Interpretation | Inoculant outlets should be disaggregated by PPP, pilot production or importation). Note: Number of public-private suppliers in total, starting from MEA limited (Kenya) and Grasslands (Zimbabwe) |
| Calculation method | Count the number of inoculant outlets in each target area |
| Unit of measurement | Number |
| Data source | Survey report of agro dealers in target areas, partners database of target agro dealers |
| Method | Survey of agro dealers in target areas |
| Level of collection | Agro dealers |
| Frequency | Every six months |
| Responsible | BDOs and Dissemination partners |
| How | BDOs and Partners will survey agro dealers and identify those dealing with inoculants |

|  |  |
| --- | --- |
| Nr. | 31 |
| Level | OUTPUT |
| Objective | 2 |
| Key Milestones | 2.5.1. By Q4 of years 1-4, inoculants available through public-private partnerships, through importation and/or local production, the latter facilitated by the inoculant production pilot plant |
| Indicator | Volume of inoculants with the identified outlets |
| Baseline |  |
| N2Africa Target (End Project) | 56 |
| Definition of indicator(s) / Interpretation | Available means outlets meet the quantity demanded by producers. The target is based on total tons of inoculant needed by producer groups. |
| Calculation method | Sum of total inoculants available per outlet |
| Unit of measurement | Tons |
| Data source | Survey report of agro dealers in target areas, partners database of target agro dealers |
| Method | Survey of agro dealers in target areas |
| Level of collection | Agro dealers |
| Frequency | Every six months |
| Responsible | BDOs and Dissemination partners |
| How | BDOs and Partners will survey agro dealers, identify those dealing with inoculants and compile the volume |

|  |  |
| --- | --- |
| Nr. | 32 |
| Level | OUTPUT |
| Objective | 2 |
| Key Milestones | 2.9 Assess the effectiveness and efficiency of various input delivery and marketing systems especially for women |
| Indicator | A report indicating operations of input delivery and marketing systems |
| Baseline | None |
| N2Africa Target (End Project) | 1 |
| Definition of indicator(s) / Interpretation | A report containing the effectiveness and efficiency of input and marketing systems with special attention to women |
| Calculation method | Assessment based on identified /agreed indicators. |
| Unit of measurement |  |
| Data source | Sampled agro-dealers, marketers/traders and producer organizations |
| Method | Survey |
| Level of collection | Agro dealers, marketers and producer organizations |
| Frequency | Annually |
| Responsible | BDOs |
| How | BDOs will sample and assess the effectiveness and efficiency of the various systems |

|  |  |
| --- | --- |
| Nr. | 33 |
| Level | OUTPUT |
| Objective | 3 |
| Key Milestones | 3.5.1. By Q4 of year 3, relationships between grain nutritional quality and management / environmental conditions quantified |
| Indicator | # of relationship equations quantified |
| Baseline | None |
| N2Africa Target (End Project) | 5 |
| Definition of indicator(s) / Interpretation | Relationship equations will be based on grain nutritional quality, management and environmental conditions. Note: 1 set of equations per country per legume for 16 legume x country combinations (see Table 1 of the proposal) |
| Calculation method | Count the number of quantified relationships equations based on nutritional quality, management/environment |
| Unit of measurement | Number |
| Data source | Meta-analysis report of trials and demos per country |
| Method | Desk review of meta-analysis report & observation of quantification process |
| Level of collection | Country level |
| Frequency | Per season in each country |
| Responsible | Data Analyst/Agronomist in all countries |
| How | Data Analyst/Agronomist will indicate in meta-analysis the equations quantified per country |

|  |  |
| --- | --- |
| Nr. | 34 |
| Level | OUTPUT |
| Objective | 3 |
| Key Milestones | 3.6.1 Food consumption and diversity scoped for at least 2 Core Countries |
| Indicator | Food consumption and diversity patterns involving selected women and children for 2 core countries identified |
| Baseline | None |
| N2Africa Target (End Project) | 2 |
| Definition of indicator(s) / Interpretation | Food patterns and diversity of foods consumed by participating women and children |
| Calculation method | Food patterns and diversity is based on the number, and frequency of foods consumed, and major sources of energy and selected nutrients using agreed weighted records for specific days/seasons. This will be done for selected women among participating households and beneficiary children |
| Unit of measurement | Number |
| Data source | survey report |
| Method | Survey of selected women and children from target areas and the desk study of the report to identify the patterns per country |
| Level of collection | Selected target women and children. |
| Frequency | First year |
| Responsible | Gender team/M&E |
| How | Sampled women and children will be surveyed to identify their food consumption patterns and diverties. |

|  |  |
| --- | --- |
| Nr. | 35 |
| Level | OUTPUT |
| Objective | 4 |
| Key Milestones | 4.1.2. By Q4 of years 2-4, improved legume production recommendations integrated in the dissemination campaigns |
| Indicator | # of improved legume production recommendations integrated in dissemination campaigns |
| Baseline | 5 |
| N2Africa Target (End Project) | 15 |
| Definition of indicator(s) / Interpretation | Note: 2 extra production recommendations per core country, starting from a total of 5 generated in phase I |
| Calculation method | Count the number of improved legume production recommendations integrated in dissemination campaigns |
| Unit of measurement | Number |
| Data source | dissemination plans |
| Method | Direct observation of dissemination campaign programs |
| Level of collection | N2Africa country dissemination campaign plans |
| Frequency | Annually |
| Responsible | BDOs and Country Coordinators |
| How | BDOs and country coordinators will review country dissemination plans to identify improved legume production recommendations |

|  |  |
| --- | --- |
| Nr. | 36 |
| Level | OUTPUT |
| Objective | 4 |
| Key Milestones | 4.6.2. By Q4 of year 5, elite strains used for inoculant production for beans, groundnut, and/or cowpea |
| Indicator | # of elite strains used for inoculant production |
| Baseline | None |
| N2Africa Target (End Project) | 6 |
| Definition of indicator(s) / Interpretation | Note: At least 2 strains per target legume and should focus on beans, groundnut and/or cowpea |
| Calculation method | Count the number of elite strains used for inoculant production per country |
| Unit of measurement | Number |
| Data source | Inoculant production strains used per country |
| Method | Observation and texting |
| Level of collection | Country level |
| Frequency | Annually |
| Responsible | Agronomist in countries |
| How | Agronomists will count the number of elite strains used in inoculant production in all target countries |

|  |  |
| --- | --- |
| Nr. | 37 |
| Level | OUTPUT |
| Objective | 4 |
| Key Milestones | 4.8.1. By Q4 of year 2, standard operating procedures of the production, quality control and application of inoculants used by inoculant producers and retailers |
| Indicator | # of inoculant producers and retailers (public private suppliers) using standard operating procedures |
| Baseline | 2 |
| N2Africa Target (End Project) | 5 |
| Definition of indicator(s) / Interpretation | The operating procedures must include production, quality control and application. Note: Number of public-private suppliers in total, starting from MEA limited (Kenya) and Grasslands (Zimbabwe) |
| Calculation method | Count the number of inoculant producers and retailers using the SOPs |
| Unit of measurement | Number |
| Data source | Records of inoculant producers and retailers, samples of inoculants produced and sold by retailers, observation of inoculant stocks |
| Method | Desk review of production protocols of producers, test samples of inoculants, observation of practices in retail shops |
| Level of collection | Inoculant producers and retailers |
| Frequency | Annually |
| Responsible | Agronomist in countries |
| How | Agronomist will sample inoculant producers and retailers and check the production protocols and test samples of inoculants, check storage practices |

|  |  |
| --- | --- |
| Nr. | 38 |
| Level | OUTPUT |
| Objective | 5 |
| Key Milestones | 5.1.1. Throughout the project, a strategic M&E framework provides timely feedback to learning and future planning |
| Indicator | M&E framework outline types of feedback and planning and provide timely data |
| Baseline | None |
| N2Africa Target (End Project) | 1 |
| Definition of indicator(s) / Interpretation | Strategic M&E is where feedback is provided as and when needed to inform project decision at each level |
| Calculation method | The M&E framework will identify & specify various feedback loops, indicate specific timeframe to deliver feedback information. Note: 1 project-wide M&E framework operationalized by year 1 across all target countries |
| Unit of measurement | Number |
| Data source | Project wide M&E framework |
| Method | Desk study of the M&E framework and possible review |
| Level of collection | Project wide |
| Frequency | Annually (after planning) |
| Responsible | M&E Specialist |
| How | M&E Specialist will review the M&E framework based on feedback provided to project as results and inputs for planning |

|  |  |
| --- | --- |
| Nr. | 39 |
| Level | OUTPUT |
| Objective | 5 |
| Key Milestones | 5.3. Effective ICT tools provide information on legume production, management, and value addition beyond the project life |
| Indicator | # of ICT tools developed |
| Baseline | None |
| N2Africa Target (End Project) | 4 |
| Definition of indicator(s) / Interpretation | Note ICT tools developed will be based on information provision regarding legume production, management and value addition: At least 4 ICT tools by the end of the project |
| Calculation method | Count the number of ICT tools developed at project level |
| Unit of measurement | Number |
| Data source | Types of tools used for M&E purposes at project level |
| Method | Desk review and field reports of ICT tools developed |
| Level of collection | Project level |
| Frequency | Annually |
| Responsible | M&E Specialist and Data manager |
| How | M&E Specialist will indicate which types of tools have been developed based on needs and utilization |

|  |  |
| --- | --- |
| Nr. | 40 |
| Level | OUTPUT |
| Objective | 5 |
| Key Milestones | 5.6. Evaluate the effectiveness and efficiency of various D&D approaches for legume intensification |
| Indicator | # of evaluation studies conducted |
| Baseline | None |
| N2Africa Target (End Project) | 3 |
| Definition of indicator(s) / Interpretation | The usefulness and the capabilities of the D&D approaches to obtain the agreed results from partners and beneficiaries |
| Calculation method | Evaluations should be conducted three times(beginning, mid-term and end) to provide learning and design for improvement |
| Unit of measurement | Number |
| Data source | Evaluation reports |
| Method | Desk review |
| Level of collection | Project level |
| Frequency | Every other year |
| Responsible | BDOs |
| How | BDOs will identify all D&D approaches and use common indicators to assess their effectiveness and efficiencies |

|  |  |
| --- | --- |
| Nr. | 41 |
| Level | OUTPUT |
| Objective | 5 |
| Key Milestones | 5.6. Evaluate the effectiveness and efficiency of various D&D approaches for legume intensification |
| Indicator | Effectiveness and efficiency of D&D approaches documented and shared |
| Baseline | None |
| N2Africa Target (End Project) | 3 |
| Definition of indicator(s) / Interpretation | The usefulness and the capabilities of the D&D approaches to obtain the agreed results from partners and beneficiaries |
| Calculation method | All D&D approaches will be evaluated with specific indicators on their effectiveness and efficiency levels |
| Unit of measurement | Number |
| Data source | Evaluation reports |
| Method | Survey of partners, target households and project staff |
| Level of collection | Country level (Aggregated at project level) |
| Frequency | Every other year |
| Responsible | BDOs |
| How | BDOs will lead a survey of partners and households to identify the usefulness and capabilities of all D&D approaches |

|  |  |
| --- | --- |
| Nr. | 42 |
| Level | OUTPUT |
| Objective | 5 |
| Key Milestones | 5.7.1. By Q4 of year 4, the sustainability of legume interventions for smallholder farmers evaluated through impact assessment studies |
| Indicator | Project wide impact assessment conducted with available report indicating level of sustainability of project interventions |
| Baseline | None |
| N2Africa Target (End Project) | 1 |
| Definition of indicator(s) / Interpretation | Note: 1 project-wide study to be delivered by the end of year 5 |
| Calculation method | Impact assessment will be based on the project focal areas of intervention (e.g. gender, improved yields, etc). |
| Unit of measurement | Number |
| Data source | Sampled target households |
| Method | Interview, Observations, focus group discussions |
| Level of collection | Project level(disaggregated by ecological zones) |
| Frequency | 2015 and 2016 |
| Responsible | Project leadership team |
| How | Project leadership team in consultation with BMGF will select an organization to conduct the assessment. Specific areas of focus will be agreed upon based on the impact indicators. |

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1. x.x means a certain activity, output or outcome indicator is suggested but not yet endorsed [↑](#footnote-ref-1)
2. A computer is considered hereby anything like an android phone, tablet, Smartphone, PDA to electronically collect data from programmed data collection tools i.e. a form, questionnaire, voucher, invoice, receipts etc. [↑](#footnote-ref-2)